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FLOW IN COMMERCIAL EXPERIENCES

A study in the subjective dynamics of the flow state, personal characteristics and customer satisfaction

Master´s Thesis
in Marketing

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1 INTRODUCTION

1.1 Toward better understanding of subjective experience in marketing

Experiential services and characteristics in business started to gain notable attention in the very end of second millennia after Pine and Gilmore published their famous article *Welcome to the Experience Economy* (1998) in Harvard Business Review followed by the release of the book it was summarized from (Pine & Gilmore 1999). Previously Kotler (1973) had already noted the relevance of atmospherics, but the consensus of the consumer behavior maintained as rather economical and regarded the customers as rational decision makers with focus in practical uses and benefits. By highlighting the subjective experiences and experiential marketing the customers are still brought up as rational, but also as emotional individuals, who seek to experience pleasurable events through their lives (Schmitt 1999, 53). These subjective experiences are memorable and personal, whereas products are tangible and standardized, or services are intangible and customized (Pine & Gilmore 1998, 98).

The structure of these subjective commercial experiences has been studied by various researchers. Otto and Ritchie (1996) examined the experiential factors of quality in tourism after deciding the typical tools designed to measure the quality of a service to be unfit for the travel industry. In their previously mentioned article, Pine and Gilmore (1998) divided the commercial experiences into four distinct categories basing the decision on the attributes of the experiences. Schmitt (1999) proposed strategic experiential modules used in advertising and branding to generate experiences in customers through marketing. Later, researchers have studied the characteristics linked to the experience quality perceived by customers (e.g. Chen & Chen 2010; Chang & Horng 2010; Lemke, Clark & Wilson 2011) and created structural models focused in certain commercial experiences (e.g. Kao, Huang & Wu 2008; Triantafillidou & Siamkos 2014).

Recently, Chase and Dasu (2014) brought up a new perspective to study commercial experiences. They propose the field of service marketing a new lower category, experience psychology, which is meant to broaden up the research of a commercial experience with much larger amount of psychological research, knowledge and methods. This rather fresh perspective will be approached in this research by studying psychological literature of subjective experience, and in particular, flow state, conceptualized by Mihaly

Csikszentmihalyi (1975). It is regarded as an intrinsically motivating state of an individual, generated by clear objectives and direct feedback within the activity. When the flow state is finished, it is often described as interesting, satisfying and enjoyable (Csikszentmihalyi 2014b, 158–159). Its effect has been measured in various contexts such as education (e.g. Csikszentmihalyi 2014b; Hamari & Koivisto 2014), relationships (Graham 2008), sports (e.g. Kowal & Fortier 2000; Swann, Keegan, Piggott & Crust 2012), daily life (e.g. Clarke & Haworth 1994; Ullen et al. 2012) internet and social media use (e.g. Novak, Hoffman & Duhachek 2003; Skadberg & Kimmel 2004; Ozkara, Ozmen & Kim 2017; Pelet, Ettis & Cowart 2017), and virtual environments (e.g. Faiola, Newlon, Pfaff & Smyslova 2013; Klasen et al. 2014). But when approaching the commercial experience context, the studies built on the theory of flow focus mostly on tourism, and especially experiences with high emphasis on physical activity (e.g. Arnould & Price 1993; Oh, Fiore & Jeoung 2007; Klaus & Maklan 2011; Ayazlar 2015).

1.2 Objective of the research

As the flow state is beneficial to the person experiencing it, that has also been the case for the linkage between the intensity of flow and customer satisfaction in tourist experience (Wu & Liang 2011; Kanagasapapathy 2017), but in certain commercial contexts the high challenge required to experience flow has been counterproductive (e.g. Triantafillidou & Siamkos 2014, 534) and the time distortion resulted by flow having negative effects on online purchasing (Ozkara, Ozmen & Kim 2017). The flow state during involvement has been beneficial for the relationship with brand or product (Mathwick & Rigdon 2004; Schouten, McAlexander & Koenig 2007). The individual preference, proneness and eagerness to experience flow has been suggested to depend on individual factors, motivation (Csikszentmihalyi 1990, 146–147; Nakamura & Dubin 2015, 263) and personality (Csikszentmihalyi 1990, 81; Clarke & Haworth 1994, 522). There has been virtually no research on the effect of these factors and if they have an influence on the seen benefits of experiencing flow in a commercial context. Thus, the purpose of this research is to understand the dynamics behind the personal characteristics, experienced flow state and satisfaction in commercial experiences. This objective is divided into following three sub-objectives:

1. How does the intensity of flow state vary between different customers groups?
2. How do the personal characteristics influence on the intensity of the flow state experienced by the customer?

3. To what extent do the flow state and the personal characteristics closely connected to it affect customer satisfaction in commercial experiences?

In the second chapter the focus will be first on the previous research done in the fields of flow theory. The theory regarding flow state will be first conceptualized and then its structure, characteristics and requirements will be described. The personal characteristics influencing in the flow state will also be discussed. Many of the theoretical concepts discussed are drawn from the qualitative studies of Csikszentmihalyi but are also critically evaluated with the help of both qualitative and quantitative studies from other researchers studying flow. For example, a couple recent brain imaging studies are discussed to connect the rather vague and subjective concept of flow into concrete and physical phenomena.

In the third chapter, the emphasis will be moved on to address the compatible concepts between these two fields to further solidify the theoretical framework used in the study. The impact of flow for customers is first discussed by generally approaching the commercial experiences and the aspects affecting their quality. The areas where flow should affect while considering experience quality are investigated. Later, flow will be reflected on the classifications and contents of commercial experience and experiential marketing. Based on this, a unified framework of flow and other relevant states in commercial experience will be formed.

Chapter four will contain the research design and methodological choices made to fulfill the purpose of the research and the sub-objectives set. With the relevant theories led from research discussed in previous chapter being mostly based on qualitative research and introspective descriptions of the subjects, and both commercial experiences and flow state fitting together already well, the quantitative research methods are the logical choice for this study to uncover the nuances behind the dynamics of personal characteristics, flow state and satisfaction. The data collected with a questionnaire filled by the customers during a commercial experience will be analyzed with partial least squares (PLS) structural equation modelling method.

The fifth chapter will include the results gathered and the analysis of the data collected to fulfill the purpose of the research and the sub-objectives set. First, the intensity of flow will be investigated in different customer groups mostly separated by the background variables to answer to the first sub-objective of the research. The main research method of PLS structural equation modelling will be conducted on the data by using a model derived from the theoretical discussion had in chapters 3 and 4. The results from this complex model is then discussed and considered before a process to streamline the PLS model takes a place. In this, the redundant variables and insignificant paths are removed

to provide a better PLS model for the results of this study. The two PLS models will cover the remaining two sub-objectives of the study.

Finally, the chapter six will hold the conclusions made from the study and its results. It will first summarize the findings and then discuss the theoretical and managerial implications of the findings. Also, the limitations of the study will be addressed and the recommendations for the future research will be given.

1.3 The multifaceted concept of experience

With this study being influenced by two distinct fields of study dealing with the term experience in their own perspectives, it is necessary to clarify what kind of concepts and actions are being discussed. The commercial context alone has two conflicting definitions for experience. Helkkula (2011) and Schmitt and Zarantonello (2013) have addressed this issue with help from other languages than English. For example, German (and Finnish) have two translations for the English word ‘experience’. *Erlebnis (elämys)* refers to the hedonic and emotional events and occurrences, while *Erfahrung (kokemus)* is about the practicality, knowledge and skills required. In commercial context, this divide can be thought as the emotional, sensorial and environmental content provided to the customer by the facilitator in opposite to the customer’s perception of the actual functioning of the service (Berry, Carbone & Haeckel 2011, 1). This study will mostly focus on former, the emotional definition of experience. Thus, when the term ‘experience’ is used alone, both as a noun and a verb, it always refers to this definition. The construct of ‘service experience’, in the other hand will include both definitions of experience, hedonistic and practical.

Concluding what is meant with a *commercial experience* in this study, it is a service, that provides the offerings for the customer to experience the hedonistic and emotional event as one of the primary values offered. This can be rather stereotypically a service such as an amusement park and a casino, or a less typical one like a coffee shop or a store trying to be novel and exciting with a special theme. The focus is on the experiential content differentiating the service from competition. (Poulsson & Kale 2004, 268.)

The psychological theories related to the flow state also mention a couple specific experiences: optimal experience and peak experience. Optimal experience is a synonym for the flow state, which is preferred in some literature as the more scientific alternative to note this phenomenon (Csikszentmihalyi 2014a, 212). Peak experience was characterized by Maslow (1956) to describe the feeling of intense happiness during the most pleasurable

moments of life. It partially overlaps with an intensely experienced flow state as they share some hedonic and emotional experiential elements (Csikszentmihalyi 2014a, 212). Privette (1983) made the distinction based on the performance required by the person experiencing. Peak experience can be purely sensorial and emotional without active effort, while flow state is also a product of performance – whether physical or cognitive.

2 THE FLOW STATE

2.1 The characteristics of flow

The flow state refers to the holistic and intense feeling where a person is totally immersed into the activity or task at hand. It is a state, where each action is followed by another one without conscious processing preceding the action. (Csikszentmihalyi 1975, 43.) In 19th century, father of American psychology, William James (1984), described man's subjective experience of their own consciousness as a stream. Instead of consisting from separate units, it is constantly flowing. In flow state, the self is lost in this stream, but still feels to be in control – thus it is difficult to distinct the self from the environment, stimuli from reactions and past from present (Csikszentmihalyi 1975, 43). As any state experienced, it is highly subjective, personal, complex and unique, connected and constructed by previous experiences and thus unlike any prior ones (James 1984, 140–141). During the concentration on flow state and afterwards when the self-reflective thoughts return, enjoyment and achievement are felt (Csikszentmihalyi 1990, 44).

When conceptualizing the flow state for the first time, Csikszentmihalyi (1975) separated six different elements constructing it. These elements were (1) merging action and awareness, (2) loss of reflective self-consciousness, (3) centering of attention, (4) control of action and environment, (5) demand for action, clear feedback and goals, and (6) autotelic nature of flow. Later two more elements were identified and added to the concept: (7) distortion of temporal experience, and (8) perceived challenges and opportunities for action fit for person's capabilities. Two of these elements are considered to be the conditions required to experience flow: (5) and (8). The dynamics of the balance between these conditions are discussed in section 2.2. The other six are the characteristics of flow, describing how this subjective experience is in fact experienced. (Nakamura & Csikszentmihalyi 2014, 241.) These characteristics are tightly intertwined together by being a result of altered cognitive processing (Csikszentmihalyi 1975, 55).

Merging action and awareness refers to the feeling, where the person realizes her/his actions, but does not consciously think of doing them. When the actions are tried to be internally observed from imaginary third perspective, flow state is often lost. (Csikszentmihalyi 1975, 44–45.) This is due the merged action and awareness being sustained by another characteristic, *loss of reflective self-consciousness,* which removes the thoughts considering if action is the right one – the self-consciousness moves away from being a critical observer and turns more towards a participant (Csikszentmihalyi, Abuhamdeh &

Nakamura 2014, 230–231). It is important to note, that this does not mean that person in flow would lose connection to physical reality. Only the sense of self-construct, the process taking place between the awareness and action, is missing. (Csikszentmihalyi 1975, 49.)

The connection between flow and lack of reflective self-consciousness has been strengthened with help of brain-imaging study utilizing magnetic resonance imaging (MRI). Ulrich et al. (2014) discovered significant decreased activity in medial prefrontal cortex (MPFC) during flow, which is the region of the brain that has been linked to take part in self-reflective thoughts. This deactivation frees up attentional resources to focus on the current activity instead of currently unnecessary mental processes, appearing as the third characteristic of flow, *centering of attention* (Csikszentmihalyi, Abuhamdeh & Nakamura 2014, 230).

In flow state the attention is directed towards the stimuli relevant for the task at hand and ignoring the redundant ones (Csikszentmihalyi 1975, 49). Dietrich (2004) theorized that this is possible due transient hypofrontality (i.e. decreased activity in frontal lobes) reducing the explicit (i.e. conscious) computation in brain, letting the implicit (i.e. non-conscious and reflexive) system take over and execute the actions needed in the upper limit of persons capabilities. The explicit processes decrease the quality of implicit processes that have already decided what actions to do and how exactly should those be executed. This hypothesis was partially confirmed in the MRI study by Ulrich et al. (2014). Fitting for the theory of optimized cognitive processes, some tasks feel to require a lot less effort during flow (Ainley, Enger & Kennedy 2008, 114) and the cognitive workload is decreased (Peifer et al. 2014, 67).

The characteristics described previously contribute to the fourth characteristic of flow, *sense of control* over actions and environment. This feeling is product of absent reflective self-consciousness and attentional focus on the current activity, and is retroactively noticeable by realizing the lack of worry to lose control during flow (Csikszentmihalyi 1975, 50; Ulrich et al. 2014, 199–200). Sometimes this feeling of control appears also in risky or dangerous situations, where it is in fact only an illusion (Csikszentmihalyi, Abuhamdeh & Nakamura 2014, 231). Ulrich et al. (2014) have also found possible neural correlates for this characteristic in increase of activity in left inferior frontal gyrus. The MRI also showed decreased activity in left amygdala, which they speculated to be linked to decreased negative affect, which could impact on lack of worry as well.

According to Friedman (1990), with the near maximum capacity of attention directed to the immediate stimuli and action, no more can be directed to track time. Altered sense of time, or *distorted temporal experience* often emerging as a feeling of time running

faster than usual, is also one of the characteristics of flow (Nakamura & Csikszentmihalyi 2014, 240). Although, in some occasions, where tracking and managing time is crucial to the activity taking place, tracking time is just one of the challenges and thus worthy of attention (Csikszentmihalyi, Abuhamdeh & Nakamura 2014, 231). Thus, it is not surprising that people in flow state have been shown to experience more sense of timelessness than people not in flow (Ainley, Enger & Kennedy 2008, 114).

With many positive effects associated with the characteristics already mentioned, it is logical, that the last characteristic of flow is the intrinsically rewarding feeling from the activity itself leading the person to flow state – which is often referred in flow theory as the *autotelic nature of flow* (Csikszentmihalyi 1975, 53–54). Sometimes this shows in a way that in reality the end goal is only a reason to take part in the activity instead of a necessary reward (Nakamura & Csikszentmihalyi 2014, 240). Some researches go even that far, that flow is classified as a form of intrinsic motivation (Keller & Bless 2008, 198), which means motivation to partake an activity without any expected reward or outcome – which again would be classified as extrinsic motivation (Deci, Koestner & Ryan 1999, 658). The six characteristics together forming the flow state are presented below in Figure 1:

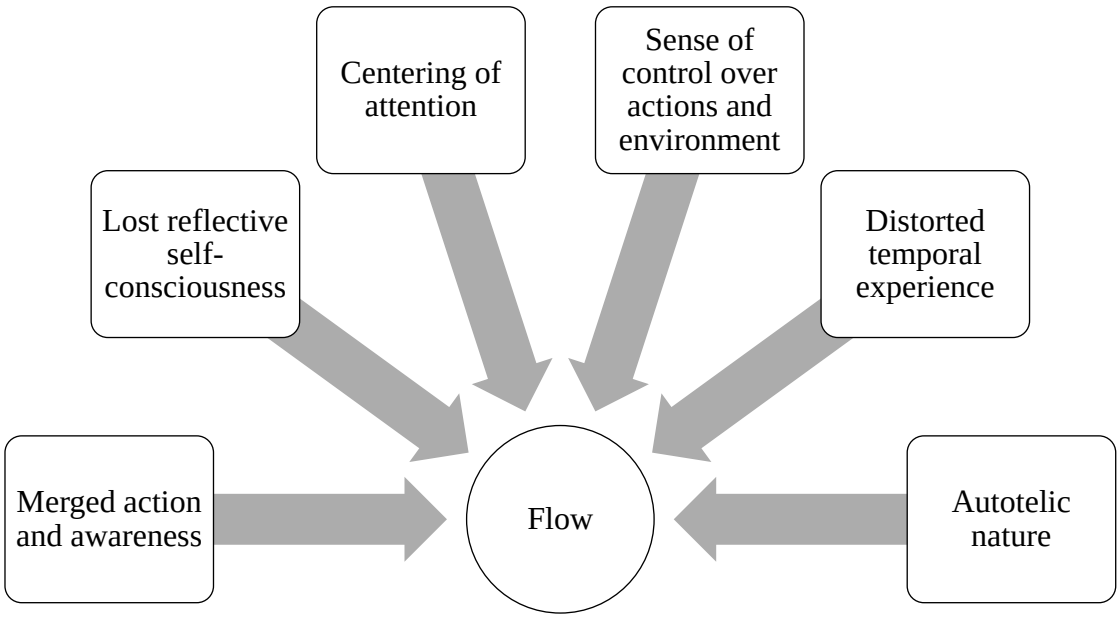

Figure 1 The characteristics forming the flow state

The six characteristics of flow are the basis of the subjective experience that can be also be noticed by the person in flow state using introspective and self-reporting methods.

After discussing how the flow state feels, the focus is now moved on to how these cognitive changes of flow state are induced.

2.2 Conditions required to experience flow

Very rarely a person is capable of reaching flow state only by centering their perception to limit redundant stimuli outside the attention and reach merged action and awareness in their actions. Most require a specific kind of flow activity to lead them there. (Csikszentmihalyi 1975, 56.) These activities can take place, when the conditions of flow mentioned earlier – demand for action, clear feedback and goals, and perceived challenges and opportunities for action fit for person's capabilities – are met (Nakamura & Csikszentmihalyi 2014, 240). But for flow to actually occur, the challenges set by the environment must be high enough to force the person to use her/his skills in a high level relative to her/his capabilities – like flow state itself, this balance of challenge and skills is totally subjective. (Csikszentmihalyi 1975, 55–56) The experience of sufficient balance between these is called as regulatory compatibility (Keller & Bless 2008, 197). Certain kind of activities, such as games, art or rituals are especially efficient to lead the participant to experience flow (Csikszentmihalyi 1975, 55–56). The goal-directedness of the participant can be also identified in the brain from the activation of putamen during the flow state (Ulrich et al. 2014, 199).

The constantly evolving subjective balance of challenges and skill will push the person experiencing flow to develop, discover and challenge personal skills even further, because if the person is able to hone the skills required by the activity long enough, the relative challenge set by the activity will decrease and can cause negative affect such as boredom instead of flow (Csikszentmihalyi 1990, 73). But the decreasing level of challenge is not always harmful, as with high enough skill, the activity can bring pleasure through feeling of control or relaxation. In the other hand, too high level of challenge relative to the skills can cause negative affect, such as anxiety and worry. If the person's skills and challenges set remain low for too long, the person might fall into apathy. The relationship of challenge and skill is showed in Figure 2. The center of the figure indicates the person's average level of activity and the rings around it demonstrate the intensity of the specific state or emotion felt. (Csikszentmihalyi 1997; Nakamura & Csikszentmihalyi 2014, 248.)

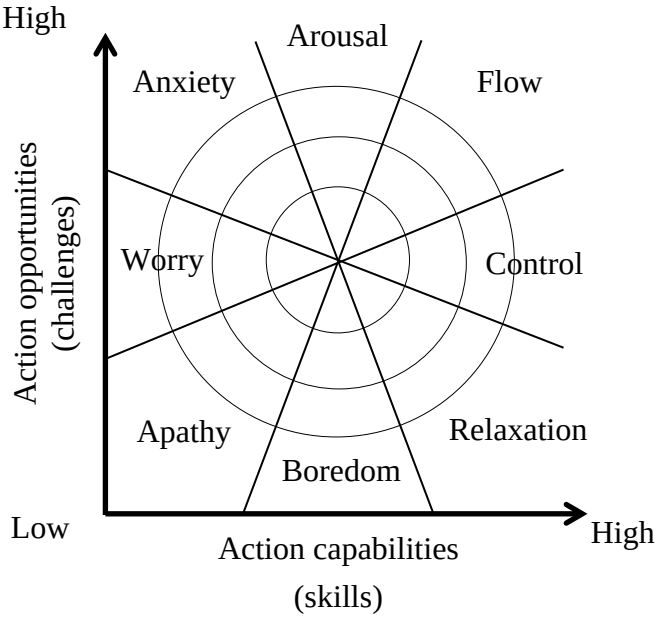

Figure 2 Model of the flow state (Csikszentmihalyi 1997; Nakamura & Csikszentmihalyi 2014)

There has been critique towards the layout of the conditions to reach flow and the requirement of regulatory compatibility. Engeser and Rheinberg (2008) illustrated that if the task is in high enough personal importance, the flow is sustained even in lower levels of challenges. The negative correlation between challenges significantly exceeding the personal capabilities and diminished flow, as well as the requirement of regulatory compatibility in tasks personally less important, were on the other hand supported in the study. Based on these findings, they pointed out the flaw in research relying solely on the regulatory compatibility to indicate flow.

2.3 Flow, challenge and stress

Even if the flow state is autotelic (i.e. intrinsically rewarding), people do not always try to participate in a flow activity. Especially for people living a demanding life the challenges required to reach flow might seem stressful, leading them to seek the feeling of relaxation instead. (Nakamura & Csikszentmihalyi 2014, 252.) The dynamics of flow require a moderate amount of beneficial short-term stress, which for example increases immunoprotection, in opposite to the harmful and chronic long-time stress the people living

demanding life could suffer from (Cheron 2016, 1). Thus, it is not totally surprising that there has been contradicting findings of the direction of the correlation between challenge and interest in the activity depending on the situation the measurement was taken in (Clarke & Haworth 1994, 516; Ainley, Enger & Kennedy 2008, 116).

Peifer et al. (2014) illustrated that in the occasions where the flow activity sets the challenges too high for the participant, the flow state turns into feelings of anxiety and stress, which boost the sympathetic nervous system and hypothalamic-pituary-adrenalic (HPA) axis responsible of emitting stress hormone cortisol and increasing heart rate, thus increasing physiological arousal. Relaxation or boredom in the other hand can be recognized from low physiological arousal, while flow state is present during moderate physiological arousal. This relationship shaped as an inverted-U is presented in Figure 3 below.

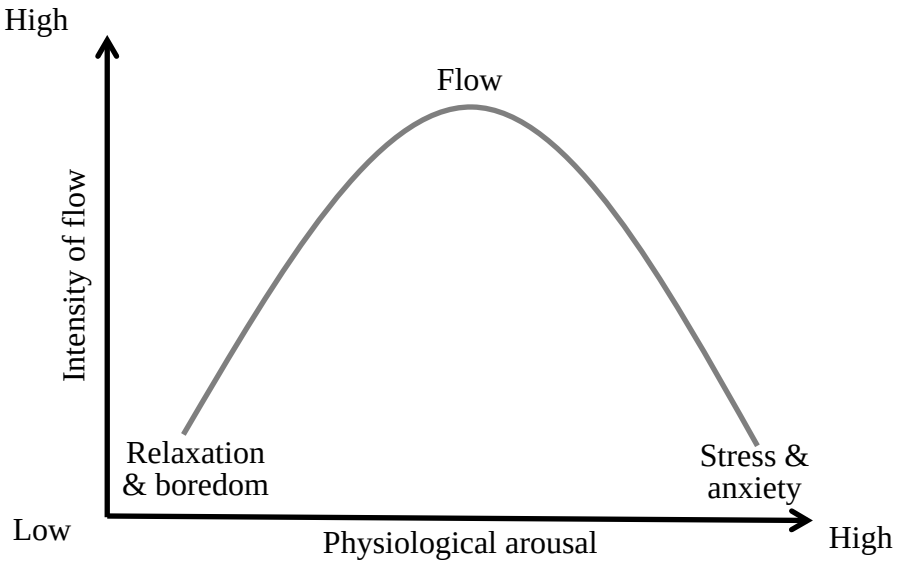

Figure 3 Flow state and physiological arousal (Peifer et al. 2014, 63)

Interestingly, Ulrich et al. (2014) showed similar pattern when comparing activity of the left inferior frontal gyrus (associated with sense of control) and increased task challenge. This could be a consequence of increased stress and anxiety decreasing the sense of control or vice versa. It may be, that the increased sense of control makes the increased physiological arousal more tolerable. Findings from the activity of the parasympathetic system responsible of regulating physiological arousal in the study by Peifer et al. (2014) could support this hypothesis. Its activity and intensity of flow correlated positively,

which could mean parasympathetic system calming down the stress response while the still relatively high cortisol levels enable more potent cognitive and physical performance.

The reluctance to partake in flow activities under longer stress is also noticeable in one puzzling situation discovered: the paradox of work (Nakamura & Dubin 2015, 263). According to a study by Csikszentmihalyi (1990, 145–146), people spend 54% of their worktime and only 18% of their spare time in conditions fit for flow. Simultaneously, the same people were in a low-challenge and low-skill environment suitable for apathy for only 16% of their time spent in work, but 52% of their free time. Csikszentmihalyi (1990, 147) speculated, that this could also be due social stereotype of work being unpleasant. When the work does not advance their own goals, but attention is still directed in it, working is considered as waste of time and the pleasant flow experience is disregarded as irrelevant. Thus, it seems like the motivational forces of flow are rather complex.

2.4 The relationship between flow state and motivation

The regulatory compatibility is a crucial factor for the autotelic nature of the flow to emerge (Keller & Bless 2008, 205). The connection between these is so strong, that in some studies it is determined as condition instead of a characteristic (Hamari & Koivisto 2014, 141). The altering nature of intrinsic motivation could be linked to the noticeable changes in flow depending on the situation (Sansone & Smith 2000; Ceja & Navarro 2008, 678). The situational motivation to partake in a specific event of flow activity currently in action, in this study a swimmer's motivation to attend a practice session, sets the foundation to experience flow during it (Kowal & Fortier 2000, 177). When using only the balance of challenge and skill as the measurement of flow, the situational motivation did not make a significant difference (Stein et al. 1995, 128–129). This could indicate that feeling motivated to do something, especially intrinsically, does not affect how the person perceives the challenge relative to her/his skills, but affects how easily the flow is reached.

Going back to the paradox of work, Fullagar and Kelloway (2009, 605; 607) discovered that autonomy in schedule and process together with variance in skills required during work facilitate flow, which again was associated with more positive affect in work. From the perspective of motivation, autonomy is especially interesting, since less supervision requires more intrinsic than extrinsic motivation. With flow state being closely involved with intrinsic motivation, can extrinsic motives to partake in the activity – such as a tangible reward like salary or focusing only in the goal being reached – be detrimental to flow. Deci, Koestner and Ryan (1999, 653–658) illustrated that expecting extrinsic

rewards undermine the intrinsic motivation, while verbal extrinsic rewards increase the intrinsic motivation.

Sometimes the intrinsic motivation and rewards can go too far and cause addiction to a particular flow activity or attract people to attend in risky activities (Nakamura & Dubin 2014, 263). Two cranial indicators of flow are also linked to addictions: hypofrontality and increased dopaminergic activity. Hypofrontality during flow, which was deducted by Dietrich (2004) and partially confirmed by Ulrich et al. (2014), is associated with many addictive psychostimulants (e.g. cocaine and methamphetamine) and to be an evidence of decreased control of drug-seeking. Increased amount of dopamine D2 activation is also connected to the addiction to these psychostimulants. (Fernandez-Espejo & Rodriguez-Espinosa 2011, 980–981.) Manzano et al. (2014, 3) illustrated with positron emission tomography (PET) scans, that proneness to experience flow is linked to the amount of dopamine D2 receptors in the brain. But unlike with addiction, these scans indicate that the increased dopaminergic activation in flow could take place in the nigrostriatal dopamine system instead of the mesolimbic system, which is often associated with addictions due its role in intrinsic rewards. Nevertheless, since the amount of dopamine D2 receptors vary between individuals, some people experience flow easier than others.

2.5 Autotelic personality

In his original article Csikszentmihalyi (1975, 57) pointed out that personality characteristics may lead individuals to estimate the balance between skill and challenge differently. Later, the term autotelic personality was coined to represent personality prone to experience flow, by feeling strong intrinsic motivation, and perhaps being more sensitive to flow or driving self into situations generating it more often (Csikszentmihalyi 1990, 81–85; Nakamura & Csikszentmihalyi 2014, 245; 253–254). Certain traits, like novelty seeking, persistence, low self-directedness and active imagination, help a person to experience flow more intensively or often (Teng 2011, 867).

Ullen et al. (2012, 170–171) found a connection between flow proneness and two out of the five personality characteristics of Five Factor Model (FFM), conscientiousness and neuroticism, but not with intelligence. Johnson et al. (2014, 468) connected extraversion, and Ross & Keiser (2014, 6) agreeableness, with autotelic personality. People high in these personality factors are described followingly by McRae & John (1992, 178–179):

- Conscientiousness: efficient, organized, planful, reliable, responsible and thorough.

- Extraversion: active, assertive, energetic, enthusiastic, outgoing and talkative.
- Neuroticism: anxious, self-pitying, tense, touchy, unstable and worrying.
- Agreeableness: appreciative, forgiving, generous, kind, sympathetic and trusting.

Conscientiousness and extraversion correlated positively with flow proneness. Conscientious people were significantly good at setting clear goals, but also great to reach regulatory compatibility, concentrating on the task and sensing control. Extroverts were feeling above all intrinsically rewarded by the task. Person with a high level of neuroticism is less prone to flow, and struggled significantly to lose self-consciousness, perhaps due higher negative affect. Agreeableness also has a slight negative correlation with majority of the flow characteristics, impacted the most by FFM scales of compliance and modesty – often negatively correlating with creativity. (Ross & Keiser 2014, 5–6.)

With the importance of autotelic personality, relationship of motivation and flow, and the effect of stress towards challenge been highlighted, a theoretical framework of personal characteristics affecting the flow state (Figure 4) shown below helps us to understand the individual dynamics of flow state better.

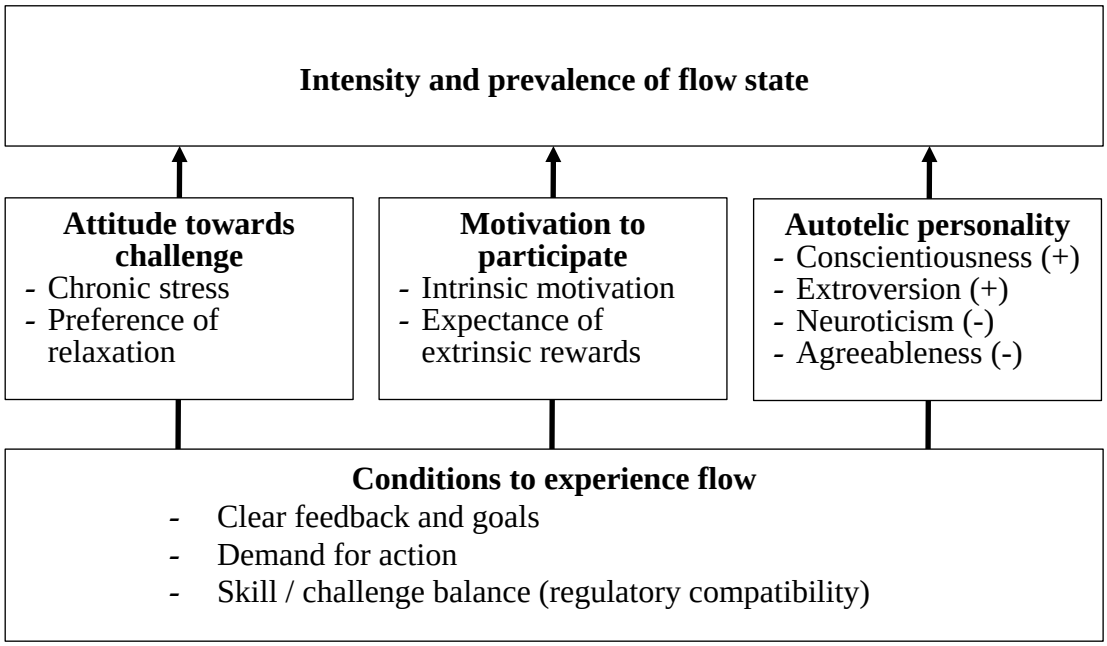

Figure 4 Theoretical framework of personal characteristics affecting the flow state

With the conditions to experience flow in regulatory compatibility, demand for action and clear feedback and goals being met, the personal characteristics might alter the intensity or even the prevalence of the flow state. If the person is stressed, extrinsically motivated or has a highly neurotic or agreeable personality, the flow state will be affected negatively by it. On the opposite, low stress, intrinsic motivation towards the action and conscientious or extroverted personality will aid the person to reach flow.

3 COMMERCIAL EXPERIENCES AND FLOW

3.1 Urge to experience

Holbrook and Hirschman (1984) pointed out the importance of symbolic, hedonic and esthetic value in their article emphasizing the experiential consumption. While this paved the way for the subjective approach towards consumer behavior, their perspective was still product and service orientated. Pine and Gilmore (1999) argued that a commercial experience is an offering, parallel to a product or a service, instead of just being one aspect of those – and that the businesses putting their focus more and more to provide an emotional experience for the customer. The importance of this dimension of an offering can be seen in the study from Boven and Gilovich (2003, 1198–1200), which demonstrated experiential purchases improve happiness more than material purchases, and in the end lead to a happier life. This gap between the happiness gained from the different types of purchases seemed to widen when the income level of the customer increased. Yu and Fang (2009) showed that while customers with lower income focus more on product quality, do the higher income customers give more importance to the commercial experience and service.

Schmitt, Brakus and Zarantonello (2015, 168) critiqued that a product and an experiential purchase cannot always be seen as two distinct ends, as sometimes a product also holds experiential functions or value. Nevertheless, the importance of an experiential offering can be traced to its value increasing through time by the feeling of nostalgy, the experiences having a bigger effect in the customer's identity and its construction process, and the social value of experiences being higher as those usually are good topics during a conversation (Boven & Gilovich 2003, 1200).

The happiness felt from an experiential offering can be either hedonic or eudaimonic, happiness felt directly from a pleasing activity or happiness felt after achieving something personally important (Schmitt, Brakus & Zarantonello 2015, 170). In both, flow state can be argued to be beneficial. The autotelic nature contributes to the hedonic and directly pleasing consumption of a commercial experience while the condition of goal-seeking synergizes with the eudaimonic happiness. Chen, Ye, Chen and Tung (2010, 311–312) discovered flow and satisfaction from a commercial experience to contribute towards life satisfaction. Thus, feeling flow can contribute to both short-term and long-term happiness of the customer. The emphasis of this study is though in the short-term happiness, hedonic pleasure, which is more relevant to the current research in commercial experiences – such

as with the experience quality constructs (e.g. Chen & Chen, 2010; Lemke, Clark & Wilson, 2011).

3.2 Experience quality, satisfaction and flow

3.2.1 Connection between experience quality and flow

Since the traditional service quality measurements such as SERVQUAL (Parasuraman, Zeithaml & Berry 1988) ignore the holistic and emotional side of the customer, a tool fit to measure quality in commercial experiences was needed (Fick & Ritchie 1991, 9; Otto & Ritchie 1996, 167). Otto and Ritchie (1996) studied the service experience quality in a tourism context, where they distincted four dimensions forming the quality: *hedonics, peace of mind, involvement* and *recognition*. *Hedonics* refer to the pleasurable and memorable moments, *peace of mind* to safety and relaxation during the experience, *involvement* to co-creation and control over the events, and *recognition* to the appropriateness of service and importance given to the customer. Especially the importance of hedonics dimension was highlighted, since it consisted from almost half (11 out of 23) of the items in the study.

Kao, Huang and Wu (2008, 165–172) defined experience quality also in four qualities: *immersion, participation, surprise,* and *fun*. *Immersion* is basically the intensity of flow during the experience, *participation* the activity to co-create the subjective experience, *surprise* the uniqueness and unexpectedness of the experience content, and *fun* playfulness and pleasure during the experience.

Chang and Horng (2010, 2405–2408) had three distinct themes in their construct for experience quality: *physical surroundings, customer's themselves*, and *other people*. *Physical surroundings* consisted of sub-categories of atmosphere (generating emotional perceptions), concentration (attracting attention to get immersed), imagination (evoking fantasies and imaginative opportunities), and surprise (positively unexpected details). *Customer's themselves* covers cognitive learning from being involved in the experience and the amount of fun they had during it. *Other people* means the quality of interaction with three groups of people also in the experience: the service providers, other customers (positive or negative) and own companions.

Lemke, Clark and Wilson (2011, 855; 859) had three variables relevant to B2C experience context in their conceptual model of customer experience quality: *hedonism, involvement* and *relationality*. *Hedonism* is relevant to the value when the offering should be either pleasurable or emotive, *involvement* raises the expectations through investment of time, effort or money, and *relationality* means the contextuality of the expected outcome, such as situational preference for utilitarian or hedonistic value.

The content of these four experience quality constructs discussed above is summarized in the following Table 1, with the addition of applications from the flow theory discussed in the chapter 2:

Table 1 Dimensions of experience quality and applications from flow theory

Experience quality construct	***Flow theory application***
Hedonics	Autotelic nature of flow
Personal involvement	Demand for action, clear feedback and goals
Immersion	Cognitive changes during flow
Recognition	Setting goals, reducing self-reflection
Surprise	Unexpected events create challenges
Subjectivity	Personal characteristics affecting flow

Hedonics includes constructs from each of the experience quality models discussed (hedonics/hedonism (Otto & Ritchie 1996; Lemke, Clark & Wilson 2011), having fun (Kao, Huang & Wu 2008; Chang & Horng)). The autotelic nature of flow experienced should thus increase the perceived experience quality, since feeling intrinsically rewarded for just participating in the experience should contribute to the emotional pleasantness of the commercial experience.

Personal involvement is also mentioned in all of the models (involvement (Otto & Ritchie 1996; Lemke, Clark & Wilson 2011), participation (Kao, Huang & Wu 2008); imagination and cognitive learning (Chang & Horng 2010)). It refers to the quality of the interaction between the customer and the experience, the co-creation of the commercial experience. Flow state required a demand for action as well as clear feedback and goals, which the facilitator of a commercial experience can set up.

Immersion (immersion (Kao, Huang & Wu 2008), peace of mind (Otto & Ritchie 1996), atmosphere and concentration (Chang & Horng)) is closely related to the cognitive

changes during flow, with the loss of reflective self-consciousness and centering of attention being the most notable for experience quality. Flow theory also provides some insight for relaxing experiences.

Recognition (recognition (Otto & Ritchie 1996), interaction with other people (Chang & Horng 2010)) means the attention received from the staff or other customers facilitating the experience, and the feelings receiving it creates. The attention from others could also provide specific goals or feedback or demand to action, but in some situations, it could reduce or increase the self-reflective thoughts and affect the intensity of flow, depending in which aspects of the experience is emphasized by the staff.

Surprise (Kao, Huang & Wu 2008; Chang & Horng 2010), the unexpected events encountered during the commercial experience, might change the level of perceived subjective challenges. Breaking a predictable pattern of events or actions could push the customer to use her/his skills more due the increased challenge, which leads to flow state.

Subjectivity (relationality (Lemke, Clark & Wilson 2011)) is the all individual variables that could affect how the customer perceives the nuances of a commercial experience in that current situation. With all the connections mentioned before in this section, should the personal characteristics affecting flow also affect experience quality. Thus, high stress, type of motivation or personality could affect what an individual customer expects from the commercial experience offering.

3.2.2 From flow to satisfaction

The study by Kao, Huang and Wu (2008) also illustrated that experience quality relates positively in satisfaction. Consistent with these findings – especially the effect of immersion to satisfaction – flow state has also lead to a higher satisfaction in extreme sports experience (Wu & Liang 2011, 323) and heritage tourism experience (Kanagasapapathy 2017, 217–219). Chen & Chen (2010, 33) too found a strong positive linkage between experience quality and satisfaction. Satisfaction felt after the consumption indicates how well the expectations set by the customer were met (Oliver 1980, 466). Woodruff, Cadotte and Jenkins (1983, 300) highlighted the emotional side of satisfaction and illustrated that to positively impact satisfaction, the experience must significantly exceed the expectations. Otherwise it will fall in zone of indifference and be attributed as common and unmemorable. Since the commercial experiences rely so much in being memorable and sensational, those should always aim for high satisfaction rates instead of settling in the safe medium.

Satisfaction also predicts future purchase intention (Oliver 1980, 465) and thus it has been studied together with loyalty behavior. Pullman and Gross (2004, 568–570) found the basic emotions (e.g. satisfaction, happiness, comfort) affect customer loyalty, while feeling privileged (VIP treatment) does not. But there lies some question marks in the utilization of satisfaction construct in commercial experiences. Pine and Gilmore (2000, 19) criticized satisfaction as the sole indicator of customers' opinions, since it does not account the individual and subjective nuances nor the biggest wants and desires of the customer.

The sources of variations in preferences between individuals are often internal and thus hard to discover. Hwang and Seo (2016, 2228–2229) listed the internal factors anteceding the customer experience as socio-demographics, past/accumulative experience, familiarity, and customer engagement to co-create. Outside these four, motivation can be a force affecting the subjective commercial experience. Crompton (1979, 415–416) studied socio-psychological motives that lead to a pleasure vacation, which were later adapted to study festival visitor motives (Crompton & McKay 1997, 437–438).

Maeng, Jang & Li (2016) executed a meta-analytic review from the past journal articles, adapting the motives from tourism research to measure festival attendance motives. After critically reviewing their results, they concluded the tourism motive measurements are not suitable to measure festival attendance motivation due inaccuracies in all the core constructs. Therefore, a problem arises when applying tourism research to research on commercial experiences or even from different kind of commercial experience to another. Altering motives between different commercial experiences create a demand for carefulness when adapting a result from one type of commercial experience to another.

Falk (2006) studied the motives of museum visitors, and later Sickler and Fraser (2009) studied on the zoo visitors. They both discovered that the visitors interacting in the same commercial experience might be motivated with totally different motives, such as from exploring science out of interest to strengthening their own identity (Falk 2006, 156–158), or from emphasis in the experience with animals and family to learn and discover more (Sickler & Fraser 2009, 323–325). With different motives comes different expectations that lead to satisfaction or disappointment. de Geus, Richards and Toepoel (2013) could find a small connection between the motivational style (ranging from extrinsic to intrinsic) and satisfaction in a festival context.

Based on the theory discussed in section 2.4 about the intrinsic motivation and flow it can be hypothesized that intrinsic motivation to act in the commercial experience leads to more intense flow which again leads to higher satisfaction. Along motivation, personality could be an influencing factor on the subjective concept of satisfaction in commercial

experience. Holbrook, Chestnut, Oliva and Greenleaf (1984, 735–737) discovered people with certain personality to enjoy more of games bolstering the traits in that personality. Thus, also having an autotelic personality (section 2.5) should lead customer to prefer to experience flow activities more often and be more satisfied after experiencing flow.

3.3 Constructing the commercial experience

To describe the differences between the commercial experience offerings businesses facilitate for their customers, Pine and Gilmore (1999, 30–31) defined four realms of commercial experiences based on two dimensions: the level of the participation by customer (passive–active) and the relationship of the customer to the experiential environment (absorption–immersion), which refers to the way the experience is felt – as an observer or as being personally a part of the experience. These dimensions form the four realms in entertainment, educational, esthetic and escapist commercial experience as seen below in Figure 5.

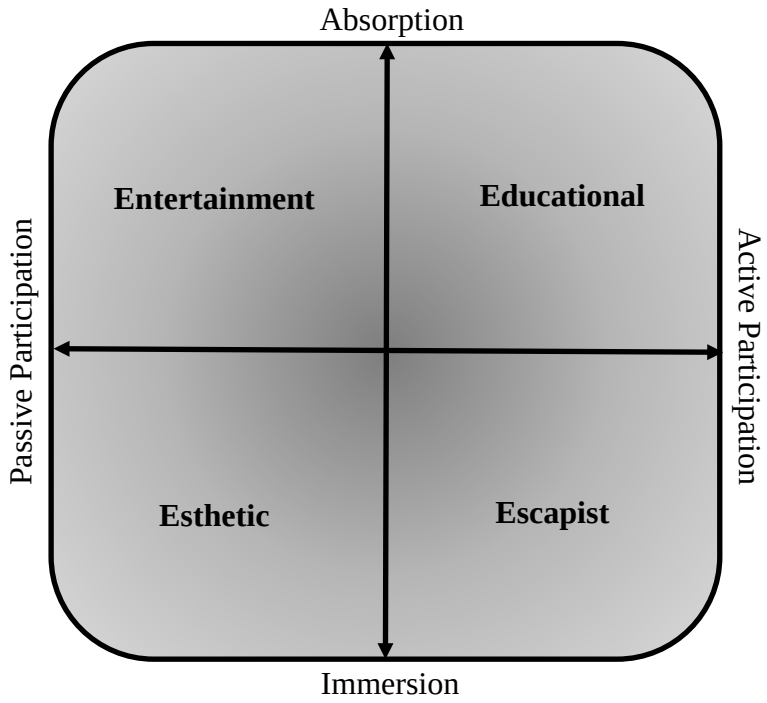

Figure 5 The four realms of experience (Pine & Gilmore 1999, 30)

A single commercial experience can contain elements from multiple realms shown in the Figure 5 above, but there is often a one dominant realm that can be used to define what is sought in the particular offered experience.

When conceptualizing his *Experiential Marketing*, Schmitt (1999, 60) defined five strategic experiential modules (SEMs) that a marketer can utilize in their promotion to create more subjective memories and associations of their products. Later, these modules have been used to also understand the ways of creating different kinds of commercial experiences (Gentile, Spiller & Noci 2007, 398) and have been found to be beneficial for brand equity (Ding & Tseng 2015, 1009). These five modules were *Sense, Feel, Think, Act* and *Relate*.

Sense covers the experiences formed by sensory stimuli (e.g. an aesthetic design) and *Feel* refers to the content creating emotions and feelings (e.g. a touching story) (Schmitt 1999, 61). Both of these modules require only a little activity from the participant, but with high enough volume and consistency the relationship to the environment can shift from absorption to immersion. *Think* is defined by content supporting cognitive problem-solving and creativity (e.g. a though-provoking question) and *Act* points at the physical activity and interaction (e.g. alternative lifestyles) (Schmitt 1999, 61–62). These two modules require the participant to be active, but she/he perceives the relationship to the environment in a commercial experience does not matter from the perspective of *Think* or *Act* modules.

When aspects of all the previous four modules are combined and a concept of expanded self is added, the module of *Relate* is formed. This module can communicate values such as ideal character roles or aspired parts of identity, which means that the experience is for the participant to be something different than she/he right now is. (Schmitt 1999, 62.) In the four realms of experience this directs towards escapist experience, supported by the mix of active and immersive elements of other modules.

As the interest in commercial experiences lies in the short-term pleasure, Dube and Le Bel (2003, 279–280) sorted different kinds of pleasure encountered. In addition to general non-associated pleasure, the categories are physical, emotional, intellectual and social pleasure. Schmitt, Brakus and Zarantonello (2015, 169) had similar categories in their dimensions to study happiness generating from materialism and experientialism, with exception of physical elements being divided to sensory and bodily experiences. From the perspective of Schmitt's (1999) SEMs of *Sense* and *Act*, this distinction is helpful, since Dube and Le Bel's (2003) Physical pleasure with examples of enjoyment from food or sports does not recognize non-physical sensory experiences. These might partially be included in the emotional pleasure though, since from typical experiential *Feel* content such as happiness or love, Dube and Le Bel's (2003) emotional pleasure generates also from more vague feelings, such as peace of mind. Intellectual pleasure is tightly tied into the SEM of *Think*, which both originate from cognitive challenges.

Social pleasure was often felt with friends (Dube & Le Bel 2003, 280). From the Schmitt's (1999) SEMs, the *Relate* module is the most relevant due its dimension of self-expansion. A person's image of self is constructed in social interactions (Harter 2012, 11) and might even vary in different social situations through self-monitoring (Snyder 1974). Thus, it is logical for the pleasurable social situations to be escapist by nature, since it helps the person to embrace her/his positive side of self over the negative side. Social interaction has been found also to intensify the experienced flow, which has led to the conceptualization of social flow: a flow state encountered in a group that has to achieve a common goal by overcoming challenges together (Walker 2010, 9). In the study of Arnould and Price (1993, 34) the evolving *communitas*, friendship and feeling of unity between the co-participants of the commercial river rafting experience, was shown to be an important part of the experience.

Csikszentmihalyi and Hermanson (1995, 72–74) studied intrinsic motivation and flow in museums and presented a four-layered model for learning in those commercial experiences. It begins with curiosity and interest (intrinsic motivation), followed by opportunities for involvement, continues to conditions for flow (regulatory compatibility, intrinsic rewards) which finally leads to growth in complexity of consciousness. What is especially interesting in behalf of the previous discussion in this section is the layer bringing up the opportunities for involvement. It has three alternative (but not exclusive) paths of sensory (visual, aural, kinesthetic), intellectual (rational, scientific, historical) and emotional (empathy, self-reflection). As can be seen, these have a lot in common with SEMs presented by Schmitt (1999) – mostly with *sense*, *think* and *feel*, and in some extent with *act* too. How the study from Csikszentmihalyi and Hermanson (1995) most notably contributes to the theory discussed in this section is the fourth layer of their model: learning from the stimuli encountered. It drives people to seek higher complexities and thus constantly demand new things to get curious about and interested of.

3.4 Four realms of experience and flow

The determining dimensions in the Pine and Gilmore's (1999) model relate to the flow theory. Active participation in commercial experience require the participant to use her/his skills in a situation, where the experience provider sets the environmental challenges to be matched, or if preferred, takes care that there are no highly demanding challenges around. Immersion in the other hand can be a product of the cognitive changes in the participant when experiencing flow during a commercial experience. Especially in the

two extreme realms, entertainment and escapist experience, flow theory serves a good framework to study the subjective dynamics of a commercial experience.

3.4.1 Entertainment experience

Found in a section of passive participation and absorption, the realm of entertainment characterizes commercial experiences where the participant's attention is directed to the amusing experiential offering, which usually relies on few sensory channels, such as a TV program or a music recording. It can be seen as the base level of a commercial experience – most of the other commercial experiences characterized by other three realms also build on the entertaining experiential content (Pine & Gilmore 1999, 30). Entertaining experiences are often seen as relaxing, where the challenges set by the experience are predictable and fall below the participant's skills (Csikszentmihalyi 1990, 34). This results from the entertainment requiring only a little activity from the participant to create the experience and not overwhelming the senses with thematic information (Pine & Gilmore 1999, 30).

The relaxing element of the entertainment experience is the distraction from the conscious thoughts, which often turn towards negative and unpleasant topics when alone and not being externally stimulated by the environment (Csikszentmihalyi 1990, 155–157). But it is important that the distraction is not too challenging and thus stressful for the participant seeking to simply relax. Thus, the experiential content communicated through the adapted Schmitt's (1999) SEMs should not be too intense. *Sense* or *Feel* should not push the participant to get immersed in the commercial experience, nor should *Think* or *Act* activate the participant too much in behalf of the creation of a commercial experience, never mention *Relate* turning entertainment into escapism.

While the increasing intensity in SEMs and the changed labelling of the commercial experience might not be harmful, it might not be what the customer expected to receive. The relaxation created by the entertaining experience is especially sought by highly stressed people whose daily life is already challenging (Nakamura & Csikszentmihalyi 2014, 252–253). Triantafillidou and Siamkos (2014, 534) found that challenge in the commercial experience has negative effect on satisfaction, WOM behavior and intention, and re-experience intention. The customer might not be interested in learning anything new and get fully engaged in the stimuli present. As shown in the study by Peifer et al.

(2014), flow state increased physical arousal similar to stress. Thus, it is logical that people under heavy long-term stress could be also more reluctant to cope with challenge and thus prefer to experience less flow during their spare time.

3.4.2 Escapist experience

Reached when the participant is immersed in the environment and is required to actively co-create the commercial experience (Pine & Gilmore 1999, 30), escapist experience provides the participant a pleasurable alternative reality by losing her/his self-consciousness and expanding what her/his real identity is (Csikszentmihalyi 1990, 63). The lack of critical self-reflective thoughts can be traced back to the usual need of the ability – avoiding negative social consequences – disappearing due the clear rules and goals the participant is following in the commercial experience (Csikszentmihalyi 1975, 49). *Relate* module helps the participant to forget his regular self and temporarily expand self to be identified with ideals or groups.

While self-expanding escapism is usually also self-developing by highlighting the positive aspects of self, self-suppressing escapism can be harmful in the long run, since it only temporarily diminishes the effects of negative thoughts (Stenseng, Rise & Kraft 2012, 22). This self-suppressing escapism can be reached for example with psychoactive drugs, which lower the brain's capacity and thus the person's skills, creating flow with lesser challenges from the environment (Csikszentmihalyi 1990, 156). For the facilitator of a commercial experience, combining both self-expanding and self-suppressing elements might be the easiest way to create a fruitful environment for an escapist experience. The self-suppressing elements, such as moderate use of alcohol, would not only reduce the number of SEMs required to activate and immerse, but also reduce the disturbance from non-relevant stimuli in the venue. This helps to reduce the amount of negative cues not consistent with the theme of the commercial experience, which is important for its integrity (Pine & Gilmore 1999, 55–56).

The participant's increased activity in the four realms of experience is usually a condition required to experience flow. The participant must be provided with enough cues with *Act* and *Think* SEMs to set the challenges and goals sought. In the other hand, immersion is in fact the primary result of experiencing flow (Sillaots & Jesmin 2016, 612). The consistent sensory and emotional cues (*Sense* and *Feel* modules) set the consistent theme of the commercial experience (Pine & Gilmore 1999, 59) and thus facilitate the flow state by providing continuous stream of stimuli to keep the self-conscious thoughts

such as work stress away (Ayazlar 2015, 798). For example, the experienced flow increased the perceived stadium atmosphere in a sports event (Lee, Gipson & Barnhill 2017, 94).

Due the benefits of immersion created by flow, there would be no successful escapist experience without flow state, or vice versa. So, if experiencing flow is what the customer desires, must the facilitator of the commercial experience put the main emphasis towards escapist elements. To retain the customer through time, this means that the facilitator must provide novel opportunities to involvement to keep the level of interaction complex enough for the customer's preferred level after development (Csikszentmihalyi & Hermanson 1995, 74–75). Additionally, Schouten, McAlexander and Koenig (2007, 365) discovered that flow state or peak experience experienced during a commercial experience creates emotional bonds between the participant and the facilitators of the commercial experience and thus strengthen the ties to the respective brand community.

3.4.3 Esthetic and educational experiences

After discussing the two polar ends of the four realms model of experience, esthetic and educational experiences are formed with high level of either immersion or activity, but with low level of another dimension. In the esthetic experience, the customer gets immersed in environment, but does not actively take part creating it and the physical interaction remains very low. (Pine & Gilmore 1999, 30, 35.) Due to this, the participant is not required to actively think or act, but the SEMs *Sense* and *Feel* are crucial forming the subjective and intuitive esthetic experience – the sensations felt from the sensory stimuli and the emotions awaked by the touching content are the core of it. According to Privette (1983, 1362–1363), this is when a person could enter the ecstatic peak experience state – with almost minimum personal effort or performance needed. Caru and Cova (2005, 43–44) theorized that the subjectivity in an esthetic experience (or artistic experience as they call it) is co-created with the customer and the facilitator of a commercial experience. The customer finds first a familiar point in the stimuli, starts experiencing stimuli related to it, attributes those to her/his memories and emotions, and finally gets immersed in the experience.

Further consciously analyzing the reasons or patterns in the *Sense* and *Feel* modules, and thus relying more on the *Think* module, would increase the role of the participant's own actions in the creation of the experience, and thus push the commercial experience higher in the dimension of activity in the four realms model and perhaps intensify flow.

Harvey, Bell, Loomis and Marino (1998, 620) illustrated that multisensory stimulation in a museum exhibit increased both immersion and flow experienced. The more different senses get stimulated relevantly to the theme by the environment in the commercial experience, the more challenges it sets by increasing the processing required in the brain to get closer to the goal of the activity.

An educational experience in the other hand is formed when the participant is highly active, but still maintains self-reflective thoughts and thus separates self from the experience. While using her/his own skills or knowledge to cope with the challenges set by the environment (Schmitt's *Act* and *Think* modules), those must be relatively challenging to learning happen. (Pine & Gilmore 1999, 30; 32.) If the educational content is too challenging for her/his skills, the participant might get anxious – as seen in Figure 2 by Nakamura & Csikszentmihalyi (2014) – and let the negative self-conscious thoughts of the insufficient performance fill the mind. In extreme challenges and barely matching skills, the person might also do a peak performance, utilization of maximum capacity and potential (Privette 1984, 1362–1363). When other SEMs compliment *Think* or *Act* and removing the commercial experience from purely being educational, could flow and immersion occur. For educational purposes, being in a flow state while learning has been beneficial for both performance and motivation (Wang & Hsu 2014, 920) and for example increase experimentation and future use of a new technology (Webster, Trevino & Ryan 1993, 415; 418). Arnould and Price (1993, 36) illustrated the significance of learning new skills in a river rafting trip, which gave a sort of sense of purpose for the participants while encountering the challenges set by wilderness.

Esthetic and educational experience might not always induce flow but might as well contain too much stimuli from SEMs to be relaxing. In this situation the challenge set by environment is moderate, and if the participant feels her/his skills are high in that particular area, she/he feels the state of control (Nakamura & Csikszentmihalyi 2014, 248). In the conditions in their study, Clarke and Haworth (1994, 517) found control to be the most positively attributed state in the flow model and thus triumphing even the autotelic flow state. Pine and Gilmore (1999, 39–40) state that ideal commercial experience should be rich and combine elements from each distinct realm. Oh, Fiore and Jeoung (2007, 121) set the sweet spot of a commercial experience in the middle of the four realms model – the same area where control would reside, if the commercial experiences are assumed to be designed to evoke only the positive emotions (relaxation, control and flow). Again, the subjectivity of the experience and the variance in the sought state should be emphasized.

Obviously, the positive emotions might not be the only emotions experienced by the customer in the commercial experience. If the SEMs lack any intensity and set the challenges too low, the customer might fall into boredom. But too high intensity of SEMs might also overwhelm the customer by being too challenging for her/his skills. This could result worry or even anxiety in the customer. (Nakamura & Csikszentmihalyi 2014, 248.) The facilitator of a commercial business must thus optimize the usage of SEMs or provide differentiated touchpoints or levels for customers in different skill levels.

The theories of flow, SEMs and four realms of experience are combined in the Figure 6 below, visualizing the interdisciplinary framework for flow and SEMs in the four realms of commercial experience discussed in this section:

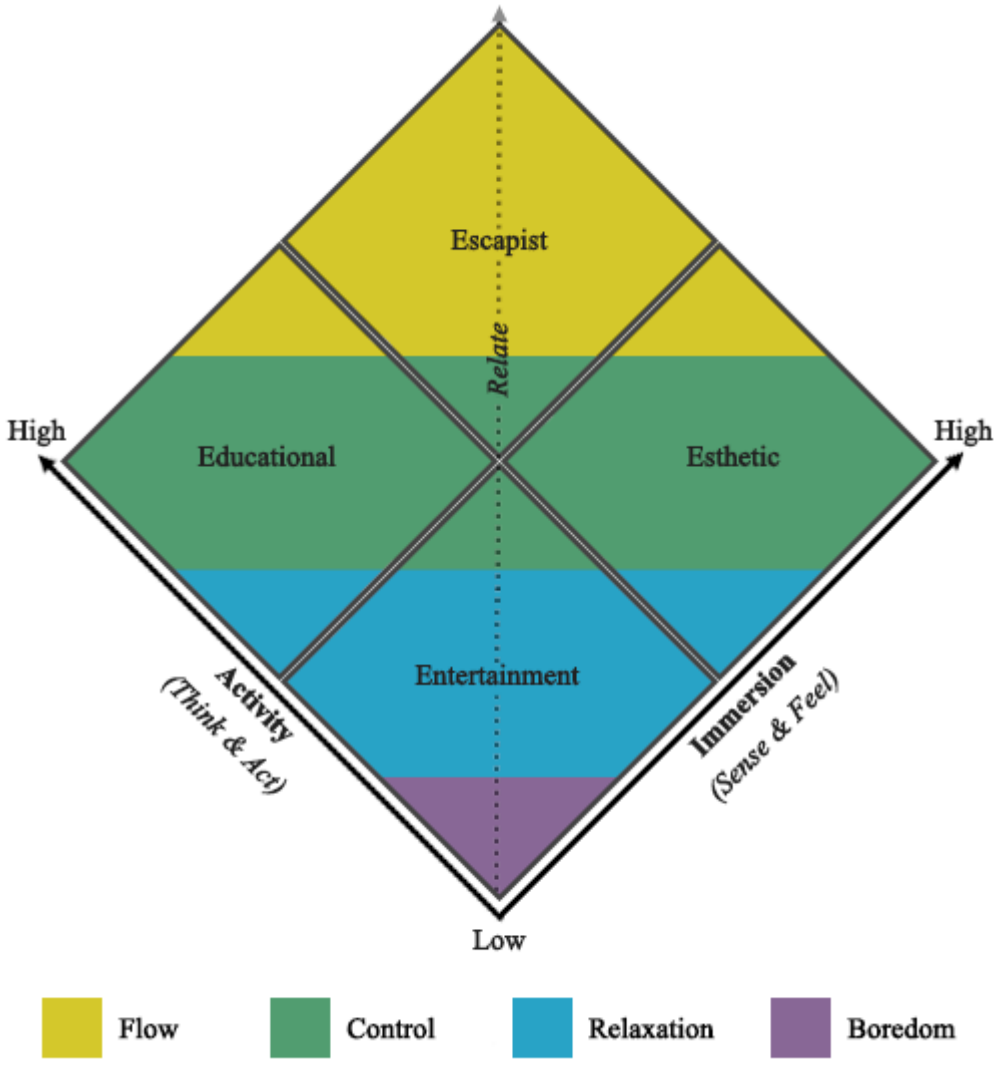

Figure 6 Flow state and SEMs in four realms of commercial experience (applied from Pine & Gilmore 1999; Schmitt 1999; Oh, Fiore & Jeoung 2007; Nakamura & Csikszentmihalyi 2014)

As the intensity of the SEMs (represented in italics in Figure 6) increase, the commercial experience moves away from the furthest corner of entertainment, characterized by low immersion and activity. The lack of stimuli there causes the participant to feel bored, but the increasing amount of SEMs available moves the experience along the dimensions towards more comprehensive sensations and engaging states of mind. The combination of the intensities of different SEMs determine one of the realms of experience where the particular commercial experience mainly resides. The facilitators of commercial experiences should thus consider, what is the purpose of the commercial experience for the customer and try to balance the amount of SEMs to provide the right kind of stimuli while still inducing the optimal state of mind among the participants.

4 METHODOLOGY

4.1 Research Setting

To explore the application of flow theory in commercial experiences further, a quantitative study was operated. The research built on data collected from Heureka, an experiential science center in Vantaa, Finland. It was collected as a customer survey with a questionnaire available in tablets provided to the customers by the surveyor. The data was studied with a Partial Least Square (PLS) structural equation modelling method.

Heureka was founded in 1989 and is backed by various Finnish governmental organizations, companies, universities and foundations – shareholders with tight connections to science and education. So far, the large science center has attracted on average ca. 279 000 visitors per year. During the year 2016, the number was 219 494, from which a little less than half were adults and about quarter being groups visiting from schools. (Heureka Annual Report 2016). Besides its main exhibition, the science center has temporal exhibitions with different science-related themes designed to make learning more fun and interactive. In addition to this, Heureka regularly facilitates different unique events lasting a day. The survey was held during one of these in 03.03.2018, when Heureka had a special event with a healthcare theme, estimated to host approximately 3000 visitors during its opening hours of 10.00-18.00.

Heureka suited well for the testing of the applications of flow theory in a commercial experience. The interiors were designed with a modern and exciting twist to enhance immersion to the experience, which was supported by ambient sounds played in the background. The educational and science-related content was wrapped in interactive experiences, where the visitor could for example try “magic trick alike” gadgets based on theories from physics or take part in a futuristic story filled with games and choices reflecting personal values. The SEMs discussed in the previous chapter were well covered. They had also used the study from Csikszentmihalyi and Hermanson (1995) studying flow in museums to improve their own unique commercial experience.

Besides operating the self-titled science center, the service concept of Heureka includes Heureka Shop, which had 3 brick-and-mortar stores and an online shop providing science-related games, toys and gifts. The company also has an international subsidiary specialized in leasing and selling the exhibitions and objects used in exhibitions to interested parties internationally.

4.2 Data collection

Since the flow state fluctuates throughout the day, it was important to interact with the customers during the commercial experience rather than after they had experienced it. To address this, the point where the survey was held located in the furthest point from the entrance. Most of the respondents came through the Seven Siblings from the Future exhibition giving enough context for them to take part in the study. If the customers arrived by the aisle, it was made sure that they had spent enough time in Heureka to form an opinion about their experience before providing them with the tablet holding the questionnaire.

All of the respondents were asked to fill a survey taking approximately five minutes and to contribute in the research done in this master's thesis. This was done by the researcher for the whole duration, excluding a 30-minute lunch break made possible by a Heureka employee taking over the process. The point of the survey was open constantly from 11.00 to 17.30 o'clock and had capacity to provide tablets for 8 persons simultaneously. A small table with crayons and pictures for coloring was also set at the survey point to encourage parents of small children to take time filling the questionnaire and help them to keep an eye on the kids. There also was a small lottery among the people finishing the questionnaire, but this had to be told for the respondent rather rarely. The questionnaire was built on the platform of Webropol online surveys and the response data was contained in the respective servers.

Majority of the people passing by were contacted and a perceivably rather high respondent rate was achieved. Although, the questionnaire was in Finnish, excluding possible responses from visitors not fluent with the language. The respondents had the opportunity to fill the questionnaire by themselves, but in the few cases when a problem occurred (mainly with the technology), the researcher was always available to offer help to return to or move forward with the questionnaire. With these methods of data collection 194 responses were collected, from which 176 were filled by a respondent old enough to validate the items used in the questionnaire. These 176 respondents formed the sample used in this study.

The questionnaire was formed to discover the connections between theoretical constructs and research discussed in the previous chapters of this study. Thus, the items used in the questionnaire were chosen from studies already conducted to ensure the validity of the measures. Some of the measures chosen had to be scaled down from the original version to avoid exhausting the respondents and keeping the questionnaire easy enough to approach to reach high enough response quality and sample size. The remaining items

were carefully picked to cover the whole phenomena included in the respective measure as well as possible.

The structure of the questionnaire used in the research begun with the background information of the respondent – age, sex, frequency of visits in commercial experiences in general, and persons this experience was shared with. After these, there were three sections in the main body. First one inquired of satisfaction and motivation as the items used were easy to approach for the respondent. Next the questionnaire brought in the measures of flow state and a few items related to it, followed by perceived long-term stress measures. The last page of the main body held the battery of questions regarding the autotelic personality. All the questions discussed so far were mandatory to avoid missing items in any of the entries. Finally, the respondent was given a chance to attend in a lottery by entering an email address, paired with a statement declaring that the filled email addresses will not be connected to the answers.

All of the questions used in the research were structured and everyone answered the same questions in same order, with the exception of an additional question regarding the quality of the persons the experience was shared with that showed up only to respondents checking one of the boxes indicating that they are not attending Heureka alone. The measurement scales followed the decisions of the original questionnaires, often ranging from (1) strongly disagree, to (5) strongly agree. Only the flow measures used a different scale, with it being from (0) not at all, to (6) very much. The background information was obtained with multiple choice with broad categories covering the possible answers. The entire questionnaire can be seen in the Appendix.

The data collected was afterwards extracted straight from Webropol servers to IBM SPSS 25 for further analysis. Consistent with the requirement of answering all the questions to finish the questionnaire, no missing data was found apart from the flow state measures, where the Webropol program assigned a missing value if the slider indicating the answer went untouched. These were manually replaced with care with the value respective to the default position of the slider. To run the PLS modelling, the data was imported to SmartPLS 3.

From the background variables, only the persons the respondent shared the experience with was refined from its original scale. The advanced measure reflected the level of the attention and energy the parent had to direct to take care of their children. The scale was four-levelled (no children – did not have to take care almost at all – had to take care a bit – had to take care a lot).

4.3 Measures

4.3.1 Operationalization and selection of measures for the questionnaire

To measure the main theoretical constructs (satisfaction, intrinsic/extrinsic motivation, flow state, stress and autotelic personality), proper measurements were derived from published journal articles from both relevant fields of science: marketing and psychology. Most of the items were translated directly to the corresponding Finnish form, but a few had to be modified to be more easily understandable for the respondent and fit the context better. The functionality of the translations was tested with multiple acquaintances of the researcher before conducting the survey. Also, the staff of Heureka were consulted in the process. The full questionnaire in Finnish can be seen in the Appendix.

Table 2 Measuring the main theoretical constructs

Construct	*Items***	*Abbreviation****
Satisfaction		
(Triantafillidiou & Siamkos 2014; Kanagasapapathy 2017)	I am satisfied with my decision to come to Heureka.	**SAT1**
	Heureka exceeded my expectations.	**SAT2**
	Heureka was worth its price.	**SAT3**
Intrinsic Motivation *(Baldwin & Caldwell 2003)*		
Intrinsic Motivation	I wanted to.	**INT1**
	I enjoy visiting there.	**INT2**
Identified Motivation	Science is important from me.	**IDE1**
	I will learn something useful	**IDE2**
Extrinsic Motivation *(Baldwin & Caldwell 2003)*		
Introjected Motivation	I will feel badly about myself if I don’t.	ITR1

	I wanted to impress my friends or acquaintances.	**ITR2**
External Reward Seeking	Others expected me to.	**EXT1**
	I was told to come.	**EXT2**
Flow State *(Engeser & Rheinberg 2008)*		
	I feel just the right amount of challenge.	FLO1
	My thoughts run fluidly and smoothly.	**FLO2**
	I didn't notice time passing.	**FLO3**
	I had no difficulty concentrating.	**FLO4**
	My mind was completely clear.	**FLO5**
	I was totally absorbed in what I was doing.	**FLO6**
	The right thoughts and actions occurred on their own accord.	**FLO7**
	I knew what I had to do each step of the way.	**FLO8**
	I felt that I have everything under control.	**FLO9**
	I was completely lost in thought.	**FLO10**
Perceived Stress *(Cohen, Kamarck & Mermelstein 1983)*		
Stressfulness	I have felt nervous and stressed.	STR1
	Found that I could not cope with all the things that you had to do.	**STR4**
	Found myself thinking about things I have to accomplish.	**STR5**
Stress stability	I have felt confident about my ability to handle my personal problems.	**STR2***
	I have felt the things were going my way.	**STR3***
	I have been able to control the way I spend my time.	**STR6***
Autotelic Personality *(NEO PI-R 2015; Ross & Keiser 2013)*		
Neuroticism		
Vulnerability	I often find it hard to make up my mind.	**NVUL1***

	I keep cool head in emergencies.	**NVUL2**
Self-consciousness	I often feel inferior to others.	NSEL1*
	I feel comfortable around my bosses, authorities.	**NSEL2**
Extraversion		
Assertiveness	In conversations, I tend to talk the most.	EASS1
	I would rather go my own way than be leader of others.	EASS2*
Activity	I often feel bursting with energy.	EACT1
	My work is likely to be slow, but steady.	EACT2*
Conscientiousness		
Dutifulness	I would really have to be sick to miss a day's work.	CDUT1
	At times I am less dependable, reliable than I should be.	CDUT2*
Competence	I pride myself on my sound judgement.	CCOM1
	I don't take civic duties, like voting seriously.	CCOM2*
Self-discipline	I almost always finish a project once started.	**CSEL1**
	I waste a lot of time before settling down to work.	**CSEL2***
Achievement-striving	I have clear goals, work them in orderly way.	**CACH1**
	I am easy-going, lackadaisical.	CACH2*

**. Reverse scored for the main construct.*

***. Actual items used were in Finnish.*

****. Bolded abbreviations retained for PLS model.*

The items to measure *satisfaction* were chosen from two previous researches, with the first item (SAT1) being originally from the study of Triantafillidiou & Siamkos (2014, 533) while the other (SAT2, SAT3) were taken from the study of Kanagasapapathy (2017, 229). The reason to combine the main construct from two different researches was to capture most of the aspects of satisfaction in commercial experiences with as few items as possible to maintain the easy approach for the respondent. SAT1 covered the traditional concept of satisfaction, SAT2 tackles the issue where commercial experiences should not be just adequate, but to surprise and exceed the expectations (Pine & Gilmore, 2000, 19), and SAT3 brings in the comparison to resources spent to experience Heureka.

Intrinsic and *extrinsic motivation* were originally measured in four constructs: intrinsic motivation, identified motivation, introjected motivation and external reward seeking. The questions were applied from the research of Baldwin and Caldwell (2003, 136), which provided a scale also suitable to discover the motivation types of adolescents. Two most suitable items per motivational type was chosen to the questionnaire used in this research. After the factor analysis paired the more ambiguous constructs of identified and introjected motivation with the more extreme constructs of intrinsic motivation and external reward seeking, two main constructs representing the both ends of the intrinsic–extrinsic continuum were formed: Intrinsic motivation and extrinsic motivation.

With the *flow state* being a sum of its characteristics, a measure called Flow Short Scale (FSS) was applied as a whole from the study of Engeser and Rheinberg (2008, 169). This consisted from 10 items covering the multiple aspects of the flow state. For the analysis, a sum variable with the mean of all 10 items was calculated to indicate the intensity of flow experienced. Also, the three other items (challenge, skill, balance) found from the article of Engeser and Rheinberg (2008) were chosen to the questionnaire, but after inadequate and inconsistent numbers in the preliminary analysis those were cut off from this study.

To measure the *perceived* (long-term) *stress* level of the respondents, Perceived Stress Scale (PSS) (Cohen, Karmack & Mermelstein 1983) was utilized. The original scale has 14 measures, but since there might be some escapist motives behind the customers' visit to the commercial experience and thus they might feel reluctant to return to stressful reality even in their thoughts, the scale used in the questionnaire was shortened to include only 6 items, from which half were reversely scored. The items that remained in the questionnaire were picked to cover as broad field of stressors or stress-relieving aspects as possible.

There did not exist a deployable measure to operationalize the concept of *autotelic personality*, for which reason the used items were chosen from the NEO Personality Inventory (NEO PI-R) based on the research of Ross and Keiser (2014). The NEO PI-R have the items for the Five Factor Model discussed in section 2.5. Technically, its items are not available for non-psychologists, but this time a probable error made it possible for the researcher to obtain the technical report holding the items almost intact. Next step was to screen the sub-scales relevant for *autotelic personality* from the study of Ross and Keiser (2014, 5). To keep the questionnaire short and to not make it feel too intrusive for the respondents, eight sub-scales with highest correlation to flow were chosen – expected to be enough to recognize the respondents with autotelic personality.

The original NEO PI-R scale has 240 items, so a massive reduction in items was necessary. Only two items per each sub-scale were selected, with other of them being a reversely scored item to avoid the respondents to alter their answers to certain direction. Left with only 16 items, which were used to form a single sum variable, where *conscientiousness* and *extraversion* traits were scored normally and *neuroticism* reversely. Thus, the applications of this study are limited in terms of psychological research, since the construction of this measure does not meet the standards set. For marketing purposes, this should be enough to see if there is a connection with the personality to other variables in the study.

4.3.2 Formation of the latent variables for the PLS model

To support the validity of the measures used in the PLS analysis, all 43 items presented in Table 2 were analyzed with a factor analysis using IBM SPSS 25. Based on the rotated component matrixes, the items with strong ambiguous loadings were removed from further analysis. One item got removed from each of the main constructs *extrinsic motivation* (INT1) and *flow state* (FLO1). Total of nine items were cut off from *autotelic personality.* The whole trait *extroversion* (EASS1, EASS2, EACT1, EACT2), an item from *neuroticism* (NSEL2) and multiple items from *conscientiousness* (CDUT2, CCOM1, CCOM2, CACH2) were taken off as well.

From the results of this preliminary factor analysis the latent variables (LVs) were formed. The *flow state* main construct was divided into two distinct LVs, *fluency of experience* (FLO2, FLO4, FLO5, FLO7, FLO8, FLO9) and *immersion* (FLO3, FLO6, FLO10). Ignoring the removal of FLO1, these two variables represent the same factors Engeser and Rheinberg (2014) received in their study. The main construct of *perceived stress* got also split in two LVs, *stressfulness* (STR1, STR4, STR5) and *stress stability* (STR2, STR3, STR6). In the *perceived stress* scale, the latter was originally reverse scored to measure the frequency of non-stressful moments, which supported the decision to reverse score it in this study to keep it as a measure of *stress stability* instead of a measure of non-stressfulness after it got separated from the *stressfulness* construct.

Based on the preliminary factor analysis, also the remaining 7 items of *autotelic personality* formed two different factors, *goal-directedness* (NVUL2, CACH1, CSEL1, CDUT1) and *self-confidence* (NVUL1, NSEL2, CSEL2) - as can be seen, the traits of *neuroticism* and *conscientiousness* have mixed together. When examining the content of items from Table 2, the former factor seems to include items that reflect the person’s

pattern of thought towards the outcome or goal – thus it was named goal-directedness. The latter group of items seems to be more concerned with the present moment where the actions and reactions appear immediately, with negative self-conscious thoughts being malicious. Based on this, a title of self-confidence was given to the respective factors.

Since the items in these constructs factor differently in the original Five Factor Model (McRae & John 1992) and an individual's personality is a formed from all her/his traits shaped by the subjective past experiences and individual temperament (Siegel 2015, 303), these two reflective personality constructs are combined into a reflective-formative second order latent variable. In this variable, the lower-order constructs of *goal-directedness* and *self-confidence* are reflected by the respective indicator items, and while separate from together based on preliminary factor analysis, together they form the higher-order construct of *autotelic personality.*

Furthermore, after creating the model in SmartPLS, two of the items were removed to sustain high enough reliability and validity for the constructs used. From *stressfulness,* item STR1 got removed to increase the construct reliability above the threshold. Also, from *goal-directedness* under *autotelic personality,* CDUT1 was removed to increase the convergent validity of the measure. More of the criterions used to measure reliability and validity can be found from the section 4.3.3 below.

4.3.3 Validity and reliability of the measures

The criterion for the validity and reliability of the latent variables (LVs) used in the PLS model mostly follow the recommendations given in the article from Hair, Sarstedt, Ringle and Mena (2012, 429–430), which ably summarizes the research done in the field of PLS and marketing research in the past years. The characteristics of data and settings used in SmartPLS 3 are available in section 4.4.1. First, internal consistency reliability and convergent validity of the measurements used as the LVs are assessed.

Table 3 Internal consistency reliability and convergent validity: Composite reliability and AVE of the reflective measurements

Construct	*Composite reliability*	*AVE*
Satisfaction	0,816	0,599
Goal-directedness	0,813	0,596
Self-confidence	0,791	0,560

Intrinsic motiv.	0,893	0,677
Extrinsic motiv.	0,815	0,600
Fluency of exp.	0,890	0,576
Immersion	0,780	0,547
Stressfulness	0,809	0,680
Stress stability	0,834	0,629

The internal consistency reliability of the latent variables used in PLS model should be evaluated with their score in composite reliability (Bagozzi & Yi 1988, 80, 82) over the Cronbach's alpha usually used as the criterion, since unlike Cronbach's alpha, composite reliability does not assume tau-equivalence (all indicators are as reliable as others in the same construct), which makes it more suitable for use in PLS (Hair et al. 2012, 424), as trying to increase tau-equivalence could seriously harm the reliability of the construct in loss of relevant input from non-equal indicators (Raykov 2007, 211). All of the composite reliabilities received from the measurements in this study exceed the criterion of composite reliability being over 0,7 given for confirmatory analyses (Hair et al 2012, 429).

The convergent validity of the constructs can be examined through the use of average variance extracted (AVE), that should exceed the value of 0,5 (Fornell & Larcker 1981, 46; Bagozzi & Yi 1988, 82). As can be seen in the Table 3, all of the latent variables pass this criterion used for reflective measures. For the formative constructs (*autotelic personality),* internal consistency reliability or convergent validity is not sought after (Hair, Ringle & Sarstedt 2011, 146). To evaluate a formative construct, the indicators' weight and its significance should be looked into (Hair et al. 2012, 430) and VIF values, which are used to measure multicollinearity, checked to be lower than 5 (Hair, Ringle & Sartstedt 2011, 146). Since *autotelic personality* is a reflective-formative 2nd order construct, instead of evaluating the indicator weight, the path coefficients of the lower order LVs should be reported (Becker, Klein & Wetzels 2012, 378). The numbers are shown in Table 4 below.

Table 4 Evaluation of a formative construct: The relationship of the lower order latent variables in the 2nd order construct *autotelic personality*

Lower order LV	*Path coefficient**	*P-value*
Goal-directedness	0,613	,000
Self-confidence	0,628	,000

No problematic VIF values in any indicator or LV in the PLS model.

**. Path coefficient received with bootstrapping, not PLS algorithm.*

The path coefficients leading from both *goal-directedness* and *self-confidence* are almost equal and relatively high (0,613 and 0,628) while being significant (p<0,001). No VIF value over 5 were found, to support the requirement of low enough multicollinearity. In fact, the highest VIF value for indicators was 2,307 (FLO9) and for LVs 1,620 (between Satisfaction and Fluency of experience). Since formative constructs should not be judged by the AVE due no requirement for internal consistency, they should not be evaluated by the Fornell-Larcker criterion explained next either.

The discriminant validity of the reflective models in PLS model is examined with the Fornell-Larcker criterion, where originally the AVE of the construct is higher compared individually to the squared correlations with all other constructs (Fornell & Larcker 1981, 46; Hair et al. 2011, 145). In SmartPLS 3, the output of this criterion varies a bit, since the program shows the square root of AVE in the diagonal cells of the table and the correlations with other constructs in the other cells, but the logic stays the same – the square root of AVE should exceed the individual correlations (Garson 2016, 67). The sufficient discriminant validity of the measures in this study can thus be seen from the following Table 5.

Table 5 Discriminant validity of the constructs: Fornell-Larcker criterion

	AP	*CEF*	*EXT*	*FOE*	*GD*	*IMM*	*INT*	*SAT*	*SC*	*SFC*	*STS*	*STR*
Autotelic Personality (AP)	-											
Commercial experience frequency (CEF)	*0.234*	**1,000**										
Extrinsic Motivation (EXT)	*0.061*	-0.054	**0.779**									
Fluency of experience (FOE)	*0.402*	0.265	0.018	**0.759**								

Goal-directedness (GD)	*0.795*	0.162	0.046	0.295	**0.772**							
Immersion (IMM)	*0.104*	0.137	-0.147	0.423	0.148	**0.740**						
Intrinsic Motivation (INT)	*0.162*	0.095	-0.441	0.131	0.083	0.165	**0.823**					
Satisfaction (SAT)	*0.029*	0.069	-0.237	0.197	-0.013	0.356	0.444	**0.774**				
Self-confidence (SC)	*0.807*	0.208	0.071	0.342	0.289	0.020	0.159	0.051	**0.748**			
Stress from children (SFC)	*-0.048*	0.213	-0.068	-0.245	-0.032	-0.280	0.039	-0.030	-0.046	**1,000**		
Stress stability (STS)	*-0.463*	-0.148	-0.105	-0.306	-0.425	-0.111	-0.107	-0.125	-0.312	0.182	**0.793**	
Stressfulness (STR)	*-0.128*	0.030	-0.063	-0.216	0.004	0.099	-0.056	-0.017	-0.199	0.005	-0.080	**0.825**

After inspecting the reliability and validity of the reflective LVs in the construct level, the focus is shifted towards the individual indicators in these constructs. First, the indicator reliability is judged based on the standardized indicator loadings (Hair, Ringle & Sarstedt 2011, 145). SmartPLS 3 automatically standardizes the data (Garson 2016, 60). The threshold to exceed in confirmatory study is 0,7, but in reality, that is not always reached as some indicators are retained due theoretical rationale rather than discarding them based on the lower explanatory power. Thus, sometimes values above 0,5 or even 0,4 are accepted if the theoretical reasons are sound. The downside of retaining indicators with lower loadings is that those decrease the confirmatory power of the study and require more cautious approach. (Hulland 1999, 198–199.) The standardized indicator loadings in the PLS model of this study can be seen below from Table 6.

Table 6 Indicator reliability: Standardized indicator loadings in the PLS model

Latent variable	*Indicator*	*Standardized indicator loading*
Satisfaction	SAT1	0,671
	SAT2	0,812
	SAT3	0,828
Goal-directedness	CACH1	0,791
	CSEL1	0,866
	NVUL1	0,642
Self-confidence	CSEL2	0,663
	NSEL2	0,799
	NVUL2	0,776
Intrinsic Motivation	IDE1	0,819
	IDE2	0,789
	INT1	0,803
	INT2	0,878
Extrinsic Motivation	ITJ2	0,640
	EXT1	0,750
	EXT2	0,910
Fluency of experience	FLO2	0,763
	FLO4	0,667
	FLO5	0,816
	FLO7	0,802
	FLO8	0,712
	FLO9	0,783
Immersion	FLO3	0,757
	FLO6	0,851
	FLO10	0,587
Stressfulness	STR4	0,882
	STR5	0,763
Stress stability	STR2	0,866
	STR3	0,844
	STR6	0,652

All loadings are significant at p < 0,001.

In total of seven indicators in seven different constructs fall below the ideal threshold of 0,7. Fortunately, six of the indicators are still relatively high with the lowest of them being 0,640 (ITJ2). But with the main goal of this study being to explore and inspect the relations between the variables, rather than precisely confirming the size of the effect on the variable to each other, these are kept within the study to prevent a huge loss of indicators and perhaps decrease the reliability of the constructs at the same time (rel. Raykov 2007). The only drastically lower loading was found from the indicator FLO10, scoring only 0,587. But in addition to the rationale behind keeping all the other indicators previously discussed, the construct *immersion* has only three indicators in it and the loss of self-consciousness is an important characteristic of flow state (see section 2.1). Thus, FLO10 is kept in the analysis as well. It is important to notice, that in none of the constructs two or more variables were below the optimal threshold.

Table 7 Discriminant validity of the indicators: Cross loadings of the indicators and LVs in the PLS model

	Autotelic personality	*CE frequency*	*Extrinsic motivation*	*Fluency of experience*	*Goal-directedness*	*Immersion*	*Intrinsic motivation*	*Satisfaction*	*Self-confidence*	*Stress from children*	*Stress stability*	*Stressfulness*
CACH1	0,59	0,08	0,11	0,20	**0,79**	0,15	-0,04	-0,07	0,21	-0,05	-0,29	-0,05
CEF	0,23	**1,00**	-0,05	0,27	0,16	0,14	0,10	0,07	0,21	0,21	-0,15	0,03
CSEL1	0,76	0,14	-0,03	0,30	**0,87**	0,13	0,15	0,04	0,30	-0,04	-0,43	-0,06
CSEL2	0,50	0,23	0,00	0,25	0,10	0,02	0,13	-0,02	**0,66**	-0,03	-0,14	-0,19
NSEL2	0,64	0,18	0,13	0,25	0,24	0,02	0,06	0,09	**0,80**	-0,05	-0,28	-0,06
NVUL2	0,65	0,07	0,02	0,27	0,28	0,01	0,18	0,03	**0,78**	-0,03	-0,26	-0,21
NVUL1	0,45	0,18	0,05	0,16	**0,64**	0,05	0,05	-0,01	0,12	0,02	-0,22	0,17
EXT1	0,14	0,03	**0,75**	0,06	0,07	-0,08	-0,25	-0,15	0,16	-0,09	-0,23	-0,05
EXT2	0,01	-0,11	**0,91**	-0,01	0,02	-0,18	-0,47	-0,27	0,01	-0,05	-0,02	-0,03
FLO10	0,10	-0,04	0,14	0,22	0,13	**0,59**	-0,02	0,10	0,04	-0,16	-0,08	0,06
FLO2	0,27	0,21	0,04	**0,76**	0,18	0,34	0,04	0,10	0,24	-0,19	-0,14	-0,17
FLO3	0,03	0,15	-0,29	0,17	0,10	**0,76**	0,23	0,35	-0,05	-0,21	-0,08	0,14
FLO4	0,28	0,13	0,01	**0,67**	0,23	0,29	0,04	0,11	0,21	-0,19	-0,27	-0,14
FLO5	0,36	0,15	0,05	**0,82**	0,24	0,35	0,09	0,17	0,33	-0,20	-0,25	-0,24
FLO6	0,12	0,12	-0,05	0,50	0,12	**0,85**	0,10	0,26	0,06	-0,25	-0,10	0,03
FLO7	0,33	0,21	0,01	**0,80**	0,29	0,47	0,13	0,19	0,25	-0,25	-0,23	-0,14
FLO8	0,30	0,20	0,05	**0,71**	0,21	0,17	0,13	0,09	0,27	-0,10	-0,23	-0,18
FLO9	0,29	0,31	-0,05	**0,78**	0,18	0,26	0,17	0,21	0,27	-0,18	-0,28	-0,13
IDE1	0,16	0,12	-0,26	0,10	0,10	0,09	**0,82**	0,30	0,16	0,08	-0,10	0,02
IDE2	-0,01	0,06	-0,32	0,11	-0,06	0,15	**0,79**	0,35	0,04	0,07	0,02	-0,04

INT1	0,14	0,01	-0,49	-0,01	0,07	0,07	**0,80**	0,27	0,14	0,00	-0,11	-0,06
INT2	0,21	0,12	-0,37	0,21	0,14	0,21	**0,88**	0,48	0,18	-0,01	-0,14	-0,09
ITJ2	0,02	0,01	**0,64**	0,02	0,03	-0,02	-0,23	-0,04	0,02	-0,00	-0,03	-0,12
SAT1	0,08	-0,05	-0,21	0,06	-0,02	0,19	0,29	**0,67**	0,14	0,04	-0,03	-0,04
SAT2	-0,02	0,05	-0,12	0,20	-0,03	0,41	0,28	**0,81**	-0,01	-0,03	-0,08	-0,03
SAT3	0,03	0,13	-0,23	0,18	0,02	0,21	0,45	**0,83**	0,03	-0,06	-0,16	0,02
SFC	-0,05	0,21	-0,07	-0,25	-0,03	-0,28	0,04	-0,03	-0,05	**1,00**	0,18	0,01
STR2	-0,46	-0,20	-0,12	-0,29	-0,40	-0,04	-0,12	-0,04	-0,33	0,15	**0,87**	-0,10
STR3	-0,36	-0,09	-0,06	-0,22	-0,31	-0,09	-0,18	-0,21	-0,27	0,11	**0,84**	-0,07
STR4	-0,14	0,01	-0,10	-0,19	-0,04	0,11	-0,05	0,04	-0,18	0,01	-0,09	**0,88**
STR5	-0,06	0,05	0,02	-0,17	0,07	0,05	-0,04	-0,08	-0,14	-0,01	-0,03	**0,76**
STR6	-0,26	-0,04	-0,06	-0,22	-0,29	-0,15	0,08	-0,04	-0,12	0,17	**0,65**	-0,01

In Table 7 above, indicator cross loadings are shown. Besides Fornell-Larcker criterion checked earlier, another evaluation for the discriminant validity is to inspect these cross loadings. This is to ensure that the indicator is loading strongest to the construct it is supposed to represent instead of a block of measures. (Chin 1998, 321.) All the indicators used in the PLS model load heaviest into the LV they should.

4.4 Data analysis

4.4.1 Conducting the analysis with SmartPLS 3

Partial least squares (PLS) structural evaluation modelling was chosen as the method to conduct the quantitative analysis in this research. As a modelling method PLS excels to explain and predict the constructs in the model but can also be use in confirmatory theory testing (Hair, Ringle & Sarstedt 2011, 148). It relies in regression-based methods to model the connections between the latent variables (LVs) and their respective indicators (outer model), as well as the relationships within the LVs (inner model). PLS suits well for every type of data even with relatively small sample sizes, it supports both reflective and formative constructs, and even allows the use of LVs consisting from a single-item (Hair, Black, Babin & Anderson 2010, 775–777). It however is not potent in detecting variables with minor effects in response (Tobias 1995, 1250). Thus, the strength of PLS lies in its versatility in exploration rather than precisely measured confirmation, which must be considered when interpreting the results of the analysis (Hair et al. 2010, 777).

The program used in this study to run the PLS analysis with was SmartPLS version 3.2.7, which is developed by a group of German PLS experts and IT professionals (Ringle, Wende & Becker 2015). The settings used for the calculations followed the guidelines from Hair et al. (2012). In PLS algorithm the individual initial weights of all the indicators were the default 1, a path weighting scheme was selected, the maximum amount of iterations was set to 300 and the stop criterion was 10^{-5}. For bootstrapping, the number of subsamples ran was 5000. In blindfolding, the omission distance set was 7, since it was recommended to be between 5 and 10, and the number of the cases divided with it should not result an integer (176/7=25,143).

All of the values used above in section 4.3.3. were from the results of PLS algorithm, except the path coefficients reflective-formative 2nd order construct, which required bootstrapping to receive the p-values. In the analysis of the results, the PLS algorithm will provide the R^2 (from which we use the adjusted R^2 to account the high number of constructs in play) to evaluate the model and f^2 to study the effect sizes in the relationships between the LVs. Bootstrapping provides the information about the significance of the paths between the variables. Blindfolding is used to calculate Q^2, which shows the predictive relevance of the model. Also, q^2 was manually calculated for the predictive valence of the individual paths. The function to calculate this was applied from the calculation designed to discover the effect (f^2) of individual paths from R^2 in regression models (Selya et al. 2012, 2). In this function, the variable B indicates the variable in the beginning of the path which's q^2 is about to be solved. A describes all the other paths leading to the same variable which's Q^2 is under inspection. In PLS this meant deleting the LV of interest (B) and running blindfolding calculations to find out the Q_A^2 in the LV at the end of the path. Here is the original function for f^2 and the modified function for q^2:

$$f^2 = (R_{AB}^2 - R_A^2) / (1\text{-}R_{AB}^2)$$
$$q^2 = (Q_{AB}^2 - Q_A^2) / (1\text{-}Q_{AB}^2)$$

While explanatory power (f^2 and R^2) is based on the causal relationships driven by the theoretical contribution, predictive power (q^2 and Q^2) simply seeks for possible predictions in the target variable based on the predicting variable on the basis of data only. Former thus seeks retrospectively for the least biased representation for the theory the model was built, while latter prospectively focuses to minimize also variance that maximizes the empirical accuracy with the cost of theoretical accuracy. There has been some debate for the predictive power to provide utility value rather than scientific value. (Shmueli 2010, 291–293.) But since it is recommended to report the predictive power of the model alongside with the explanatory power (Hair et al. 2012, 430), it will be also

considered in this study – although more weight in the analysis is put on the explanatory power due the study being heavily theory driven.

The model was structured with the basis from the theory discussed in chapter 2, but the directions of the paths was set on the basis of the stability or chronical appearance of the observed item. For example, a path was pulled from *autotelic personality* towards the *fluency of experience*, since the latter fluctuates more through time, and another path was drawn from the latter to *immersion*, which consists of the by-products of the optimized cognitive processes due to the *fluency of experience* part of the flow state. The structuration was a straightforward process apart from the construction of the reflective-formative 2nd order construct. It was created following the repeated indicator approach suggested by Becker, Klein and Wetzels (2012, 374, 377), where the indicators were not only included in the lower order reflective LVs, but also repeated in the higher order formative LV which was set in Mode B.

4.4.2 Trustworthiness of the study

The trustworthiness and quality of the study was first evaluated through the analysis of the reliability and validity present in section 4.3.3. Based on the criterions fit for the PLS structural evaluation modelling, the indicator reliability, internal consistency reliability, convergent validity and discriminant validity were found sufficient for the conduction of the study. Also, the reflective-formative 2nd order construct was evaluated. In addition to these, Hair et al. (2012, 430) suggests investigating for unobserved heterogeneity within the data. This issue is drastically overlooked in the marketing research utilizing PLS (Hair et al. 2012, 427).

Unobserved heterogeneity, which would mean multiple different segments within the data with distinct patterns cluttering the results and causing the path coefficients to be biased (Hair, Sarstedt, Matthews & Ringle 2016, 65). For example, in this study, it could be one group being more satisfied from higher *immersion* with the expense of being more satisfied from higher *fluency of experience*. With another group behaving vice versa, this would bring the path coefficients from both constructs to *satisfaction* to be somewhat in between of the two and prevent the distinct patterns of behavior from being detected. Thus, it is important to be sure that this is not the case in this study.

The heterogeneity can be observed by using a finite mixture (FIMIX) approach (Hahn, Johnson, Herrmann & Huber 2002; Sarstedt, Becker, Ringle & Schwaiger 2011; Hair et al. 2012). In FIMIX, the number of segments is set beforehand by the researcher, which

means it forces the data into separate segments in most convenient way. This means that the researcher must go manually through different amounts of segments to find the most suitable number of segments and thus different sets of data analyzed separately. (Garson 2016, 138.) The FIMIX approach was conducted following the guidelines given by Matthews, Sarstedt, Hair and Ringle (2016). The analysis was begun with one fixed segment and continued through to five segments, the stop criterion for all was 10^{-10} and maximum amount of iterations was set in 15 000 instead of the recommended 5000 since computational power was not an issue. The following results shown in Table 8 and Table 9 were received from the multiple FIMIX segmentation runs with SmartPLS.

Table 8 Different information criteria gained from FIMIX segmentation in PLS model with the most suitable number of segments highlighted in each criterion

	Number of segments				
Criteria	1	2	3	4	5
AIC	3 871,002	3 799,699	3 741,069	3 733,289	**3 718,563**
AIC3	3 916,002	3 890,699	**3 878,069**	3 916,289	3 947,563
AIC4	**3 961,002**	3 981,699	4 015,069	4 099,289	4 176,563
BIC	**4 013,674**	4 088,213	4 175,425	4 313,488	4 444,603
CAIC	**4 058,674**	4 179,213	4 312,425	4 496,488	4 673,603
MDL5	**4 944,361**	5 970,269	7 008,850	8 098,282	9 180,767
EN	-	0,907	0,890	0,881	**0,932**

Table 9 Sizes of the segments from the FIMIX segmentation in PLS model

No. of segments	*Segment 1 (%)*	*Segment 2 (%)*	*Segment 3 (%)*	*Segment 4 (%)*	*Segment 5 (%)*
2	0.876	0.124			
3	0.720	0.142	0.138		
4	0.569	0.201	0.125	0.106	
5	0.656	0.118	0.104	0.071	0.051

Table 8 shown above includes the various information criteria produced by the FIMIX segmentation, which can be studied in greater detail from Sarstedt et al. (2011, 40) and Hair et al. (2016, 70). In short, the most prominent combination of these used to decide the number of segments is to use a combination of AIC3 and CAIC (Sarstedt et al 2011,

52), but also AIC4 and BIC provide a adequate performance, while AIC has a tendency to greatly overestimate the number of segments and MDL5 tends to underestimate (Hair et al. 2016, 70). Thus, the decision will be made by using the four most capable information criteria. The number of segments with the lowest value in comparison with other numbers of segments is the most suitable per each criterion (Hair et al. 2016, 69). These are highlighted in Table 8, which suggest that the best choice would be to keep all the data in one segment.

The criterion EN would provide information of the size of the separation between the segments, supporting the decision to split the data in different segments if the information criteria suggest so (Hair et al. 2016, 69). The size of the segments visible in Table 9 above support the decision to keep the data in one segment, since the size of the additional segments are not big enough to form an adequate alternate set of data for analysis. If the information criteria would have suggested other number than one, the additional segments would have just been removed from the study (Matthews et al. 2016, 212–213). In conclusion, the observed heterogeneity in the data used in this study is not problematic or strong enough to warrant additional actions.

Hair et al. (2012, 429) also suggested the skewness and kurtosis of the data to be reported. There were a lot of nonnormality in the values of the indicators of both motivational types, with INT1 being least normal with skewness of -2,42 and kurtosis of 6,00 – the second highest scores in nonnormality for motivational indicators was 1,99 and 2,82 for EXT2. But besides those two LVs, there were only two slightly problematic indicators. SAT1 had skewness of -1,93 and kurtosis of 3,06, and STR2 had skewness of 1,30 and kurtosis of 2,47. SAT3 also had skewness of 1,09. The other variables had skewness under one and kurtosis below two. Even if in some cases this amount of skewness and kurtosis could raise slight issues, PLS is robust against the issues caused by nonnormality in many other methods (Cassel, Hackl & Westlund 1999, 446; Reinartz, Haenlein & Hanseler 2009, 341). Thus, no actions are taken, since the skewness or kurtosis in the data is not extreme.

The data obtained in the research must also be evaluated from the perspective of possible errors in the research design. The sample size (N=176) of the study is large enough for PLS structural equation modelling and the factor and variance analyses conducted with IBM SPSS. The minimum sample size for PLS would be roughly estimated with a “ten times rule”: the sample should be at least ten times the number of the highest amount of regressions leading to a single latent variable (Barclay, Higgins & Thompson 1995, 292). Thus, the sample size of this study clearly exceeds the minimum of 80 (10*8 in construct *satisfaction*). Thus, the sampling error, caused by variation in the true mean

between the population contributing to the collected results and the actual population in the commercial experience, should be rather small and the data be quite precise (Malhotra & Birks 2003, 74, 360–361).

The point where the questionnaire was physically filled in Heureka might have caused some disappointed customers that do not end up visiting all the exhibitions to be left out from the study. Also, for example certain personalities or customers with high stress and hurry might have refused from filling the questionnaire. These issues could have caused some non-response error in the data – there might be some variation between the true means of the original and net samples (Malhotra & Birks 2003, 74–75).

Since the original items used in the questionnaires are in English and were translated to Finnish for the questionnaire, something substantial might have been lost in translation. Care was taken so that this would not be the case, but a measurement error in the data collected is still possible. Although, the factor analysis conducted to remove inadequate variables should have reduced the risk. To summarize, the data used in this study should fit for its purpose and be satisfyingly valid and reliable.

5 RESULTS AND ANALYSIS

5.1 Sample characteristics

The discussion over the results obtained in the research will be begun with the sample characteristics of the data obtained. These can be seen below in Table 10.

Table 10 Overview of the sample characteristics

Variable	*Label*	*Frequency (N=176)*	*Percent*	*Cumulative percent*
Age	13-19	15	8,5	8,5
	20-29	35	19,9	28,4
	30-39	82	46,6	75,0
	40-49	34	19,3	94,3
	50+	10	5,7	100,0
Sex	Female	109	61,9	61,9
	Male	67	38,1	100,0
Frequency of visits in commercial experiences	Very rarely	19	10,8	10,8
	Rarely	55	31,3	42,0
	Sometimes	86	48,9	90,9
	Often	12	6,8	97,7
	Very often	4	2,3	100,0
Level of attention towards keeping an eye on the children	No children	39	22,2	22,2
	Not much	32	18,2	40,3
	Somewhat	39	22,2	62,5
	Almost all the time	66	37,5	100,0

The majority of the respondents (n=82) were 30-39 years old and two groups of respondents approximately twice the smaller belong to the groups one grade below (n=35) or above (n=34). The number of teenagers was again approx. two times smaller (n=15) and the respondents over 50 years old were even rarer (n=10). This kind of distribution of age was expected, since one of the largest customer group for Heureka are the families

with school-aged children, and the special event held during the day of research might have even highlighted that.

The study received more responses from female customers (n=109) than from male customers (n=67). The researcher's personal observation from the point of the survey was, that in families with young children, men were often eager to look after the kids rather than filling the survey – and perhaps giving the possibility to the partner to fill the questionnaire.

The frequency of the respondent's visit in other similar commercial experiences was also investigated. Only a few reported of visiting commercial experiences very often (n=4) or often (n=12). Most of the respondents chose the option sometimes (n=86), with also quite many told that they visit commercial experiences only rarely (n=55) or very rarely (n=19). This background variable was transformed into a single-item construct for the PLS model (see section 5.3).

The questionnaire used in research also inquired about the people the commercial experience was shared with. It included variety of options that asked if the respondent is accompanied with at least one of these persons (e.g. a parent). For the purposes of this research, only the stress caused by the children in the commercial experience is reported. These groups distributed rather equally, with three groups representing approximately 20% of the sample population each. These were respondents with no children (n=39), respondents with only children requiring almost no attention (n=32) and respondents with children that somewhat require their attention (n=39). The largest group was the respondents required to give a major share of their attention into looking after at least one child (n=66). This background variable was also utilized as a single-item construct in the PLS model in section 5.3.

5.2 Flow and different respondents

Since the flow state is a crucial construct in this study, we will examine its intensity across the groups divided by a few selected variables that are relevant for the study but might be especially interesting for managerial implications. To do this analysis, one-way ANOVAs were conducted with IBM SPSS 25, in which the significance for the variance between the means of the groups is measured (Hair et al. 2010, 440). Although, all the assumptions – normality (Malhotra & Peterson 2006, 464) in particular – for the conduction of parametric tests were not fulfilled, a non-parametric Kruskal-Wallis test was also conducted to confirm the significances derived from the parametric variance analyses and further

used to identify the groups significantly apart from each other. In these analyses, summated mean variables were used. First, age and the intensity of flow is considered.

Figure 7 Age and the intensity of flow

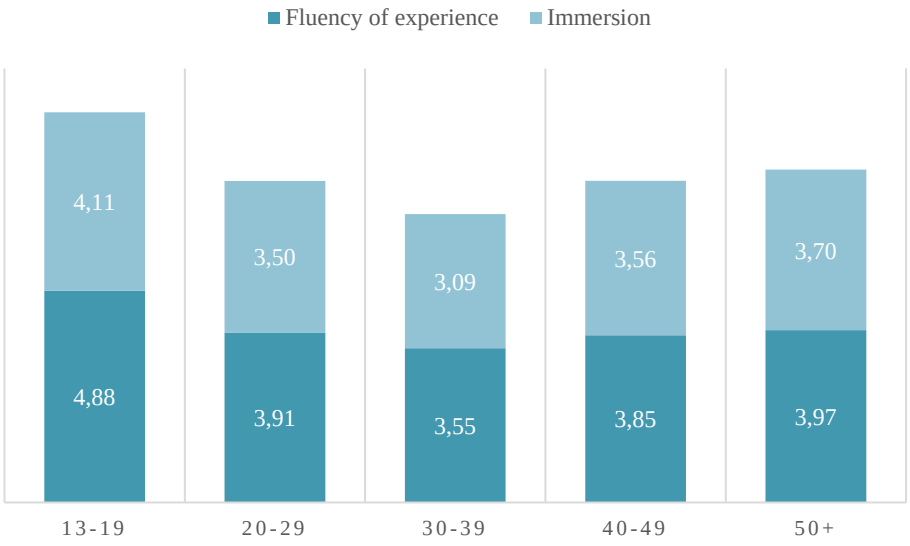

Table 11 Age and intensity of flow: significance of the variance between the groups

ANOVA	*F*	*sig.*
Fluency of experience	5,330	,000
Immersion	4,275	,003

Fit for a commercial experience of Heureka's kind, which tailors its content especially for children and adolescents, the youngest group inspected clearly differentiates itself from the other age groups. When observing *fluency of experience*, Kruskal-Wallis test recognized the difference of ages '13-19' from the ages of '20-29' and '30-39' to be significant ($p<0,05$). The difference with ages '40-49' were not far from significant either ($p=0,059$). In the other hand, the variance in *immersion* was only significant between the ages '13-19' and '30-39' ($p<0,05$).

In the light of the study from Csikszentmihalyi and Hermanson (1995), it is important for the commercial experience to induce higher flow in the groups it values the most and customizes its content for. Higher intensity of flow indicates a better balance between the challenges set by the opportunities for involvement (through SEMs) and the skills (capacity to handle the SEMs) of the customer. This boosts personal development and escapism, which both could increase the value created by the commercial experience and

perceived by the customer. Next, it will be inspected how people visiting commercial experiences in different frequencies experience flow state.

Figure 8 Commercial experience frequency and flow

Table 12 Commercial experience frequency and flow: significance of the variance between the groups

ANOVA	*F*	*sig.*
Fluency of experience	2,803	,042
Immersion	0,756	,520

According to the results from ANOVA, the differences in the variance of the means between the groups were significant only in *fluency of experience* and not in *immersion.* From Kruskal-Wallis it could be seen, that the groups where the variance is significant ($p<0,05$) was ‘very rarely’ and ‘often’. Two more ambiguous groups ‘rarely’ and ‘sometimes’ did not differ significantly from other groups. The group ‘very often’ was excluded from the analysis due to its small size (n=4) preventing reliable variance analysis.

Reflecting the results to the research discussed in section 2.1, it is interesting to notice, that *immersion* – exaggeratedly the by-product of the cognitive changes in flow – is fairly similar across all the groups, but *fluency of experience* where the cognitive processed have optimized to execute the actions to reach the set goals as effectively as possible for the individual alters greatly. This could originate from the differences in knowledge of what to look for in the commercial experience. More experienced customers can direct

themselves more directly to the heart of the offerings in the commercial experience, while less experienced customers might not know in what they should get themselves engaged into. Thus, it is important to provide easily accessible touchpoints for people more novel into commercial experiences and lacking certain self-directedness to experience.

Now the focus will be moved on to how the exceeded expectations and flow interact.

Figure 9 Exceeding expectations (SAT2) score and flow (Commercial experience exceeded my expectations. '2' = slightly disagree, '3' = do not agree or disagree, '4' = slightly agree, '5' = strongly agree)

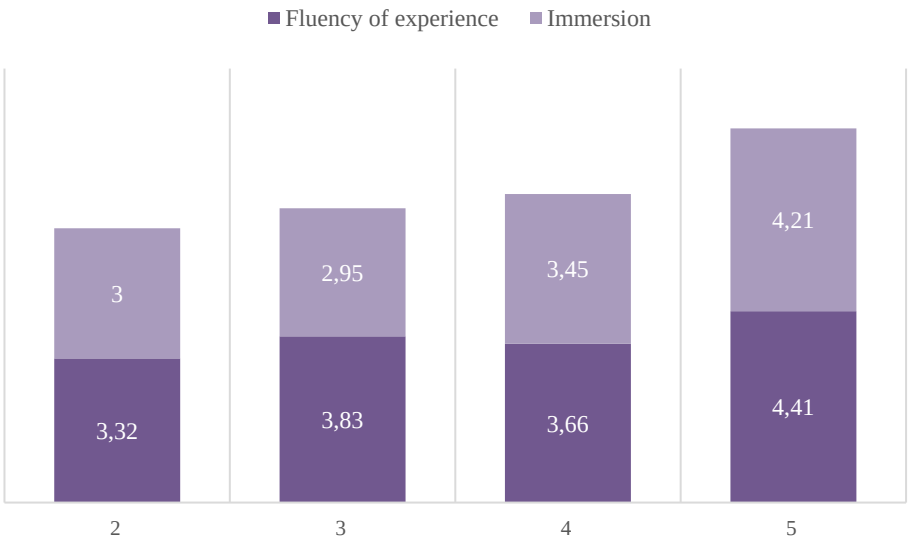

Table 13 Exceeding expectations (SAT2) score and flow: significance of the variance between the groups

ANOVA	*F*	*sig.*
Fluency of experience	4,646	,004
Immersion	12,115	,000

In ANOVA, the variance was significant in both flow measures. In Kruskal-Wallis test, the variance between the maximum score '5' and all other scores were significant ($p<0,05$) in *immersion* and in *fluency of experience* for the maximum score of '5' and the scores '2' and '4' – the variance between scores '5' and '3' vas not significant ($p=0,094$). When considering the results from ANOVA, it should be noticed, that the variable *fluency of thought* did not pass the Levene's test for homogeneity of variances.

The categorization for the groups used in this analysis was drawn from a single item (SAT2) included in the variable *satisfaction.* As Pine and Gilmore (2000, 19) emphasized the importance for commercial experiences to exceed expectations and surprise, which is also one of the experience quality construct shown in Table 1. Thus, the distinctly higher intensity of flow in the group that strongly agreed the commercial experience exceeding their expectations is prominent – inducing higher flow seems to go hand in hand with surprising content and thus contribute to the quality of the commercial experience.

Last in line for this section will be the attention directed towards the children and how it affects flow.

Figure 10 Level of attention directed towards children and intensity of flow

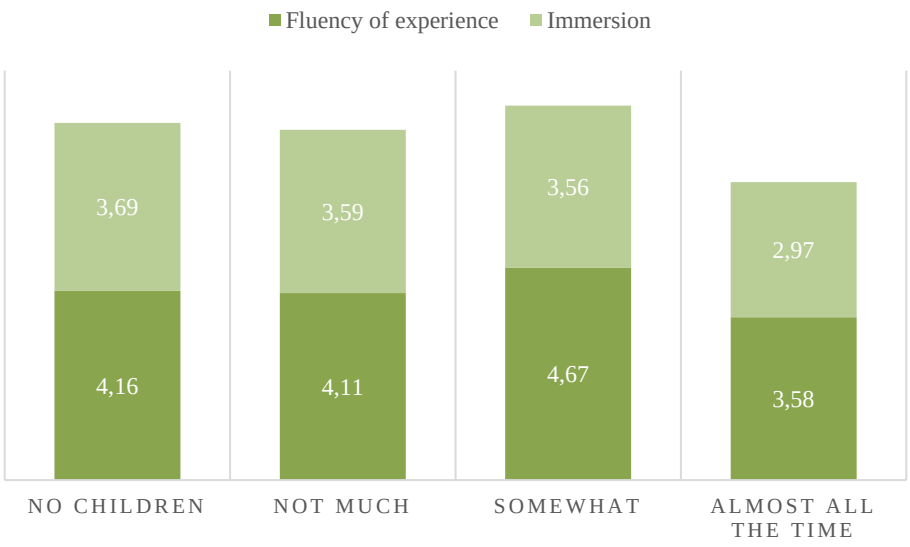

Table 14 Level of attention directed towards own children and intensity of flow: significance of variance between the groups

ANOVA	*F*	*sig.*
Fluency of experience	3,401	,019
Immersion	5,449	,001

According to ANOVA, variance in means of both *fluency of experience* and *immersion* was significant (p<0,05). In Kruskal-Wallis test's pairwise comparison, there was no significant connections in *fluency of experience* between the pairs despite the test still ruling the variance significant (p<0,05) in a group level. In *immersion*, the pairwise comparison

indicated that there are significant (p<0,05) variances for the group ‘almost all the time’ with groups ‘somewhat’ and ‘no children’.

Being accompanied by a child or several children requiring a lot of attention to look after them seems to decrease the intensity of flow experienced. This is logical, since the spontaneous behavior of the child could disrupt the focus on the stimuli communicated through the SEMs of the commercial experience. This can be a hard problem for the facilitator of a commercial experience to solve, but it could help to try guiding the spontaneous children logically forward with strategically placed cues, helping the parent to keep on track with the commercial experience simultaneously with the children.

5.3 Formation of the original PLS model used in the study

The items left after the criterions presented in the section 4.3 were used as the indicators for the latent variables (LVs) serving as the constructs in the PLS model. These constructs were based on the preliminary factors obtained in the section 4.3.1. Suggested by the findings in the previous section (5.2), two single-item variables are also added as a LV to the PLS model. The LVs and the respective indicaors with the descriptive statistics can be seen in the Table 15 below.

Table 15 Descriptive statistics of the indicators used in the PLS model

Latent variable	*Indicator*	*Range*	*Mean*	*Standard deviation*
Goal-directedness (GD) (in autotelic personality (AP))	CACH1	1-5	3,89	0,80
	CSEL1	1-5	4,00	0,84
	NVUL1	1-5	3,88	0,87
Self-confidence (SC) (in autotelic personality (AP))	NSEL2	1-5	3,62	1,01
	CSEL2	1-5	3,23	1,04
	NVUL2	1-5	3,47	0,99
Comm. Exp. Frequency	CEF	1-5	2,59	0,86
External Motivation (EXT)	EXT1	1-5	2,55	1,56
	EXT2	1-5	1,53	1,09
	ITJ2	1-5	1,80	1,20
Fluency of experience (FOE)	FLO2	0-6	4,14	1,38
	FLO4	0-6	3,79	1,65

	FLO5	0-6	3,86	1,44
	FLO7	0-6	3,65	1,28
	FLO8	0-6	3,65	1,49
	FLO9	0-6	3,83	1,43
Immersion (IMM)	FLO3	0-6	4,22	1,29
	FLO6	0-6	3,37	1,45
	FLO10	0-6	2,56	1,45
Intrinsic Motivation (INT)	IDE1	1-5	4,11	1,03
	IDE2	1-5	3,80	1,06
	INT1	1-5	4,55	0,87
	INT2	1-5	4,20	0,86
Satisfaction (SAT)	SAT1	1-5	4,29	1,11
	SAT2	1-5	3,70	0,84
	SAT3	1-5	4,02	1,03
Stress stability (STS)	STR2	1-5	1,98	0,92
	STR3	1-5	2,32	0,94
	STR6	1-5	2,23	0,85
Stressfulness (STR)	STR4	1-5	2,69	1,03
	STR5	1-5	3,48	1,07
Stress from children	SFC	1-4	2,75	1,18

In the preparation phase of the PLS model, paths were drawn from a LV to another, where each path forms a hypothetical connection deriving from the discussion in chapters 2 and 3. First, *autotelic personality* (AP) was linked to *commercial experience frequency* (CEF), *fluency of experience* (FOE) and *immersion* (IMM) based on the theoretical input of autotelic personality in section 2.5. Half of the indicators in AP were originally from factor neuroticism and the other half from factor conscientiousness. According to the five-factor model, the former has connections to stress and the latter to motivation (e.g. McRae & John 1992, 178–179). Thus, paths were created to connect AP with *stress stability* (STS), *stressfulness* (STR), *stress from child* (SFC), *intrinsic motivation* (INT) and *extrinsic motivation* (EXT).

The two motivational types INT and EXT lead paths into the flow variables FOE and IMM based on the theory discussed in section 2.4. Both are also connected to CEF, which could also reflect the type of motivation in the desire to experience more. A path from INT to EXT is also drawn, since higher intrinsic motivation should at least partially decrease extrinsic if these motivational types are in fact in different ends of the continuum.

Paths from the flow variables FOE and IMM are drawn to CEF in that direction based on certain assumptions made from the theory about autotelic personality in section 2.5 – persons experiencing flow more intensively should be also driven to experience flow more often. Thus, in these connections, FOE and IMM act as extensions of AP to support the investigation about the role of autotelic personality in commercial experience. FOE is also connected to IMM in that order based on the theorizations, where immersion is seen as the by-product of cognitive optimization (see section 2.1 and Dietrich 2004).

Paths from the long-term stress variables STR and STS, as well as from the case specific short-term stress variable SFC, are drawn to the flow variables FOE and IMM due to the discussion about similarities of stress and flow in section 2.3. Connections are also made from the long-term STR and STS to the short-term SFC to see if the underlying chronic stress affects the prevalence of temporary stress in a commercial experience.

Even if some connections, such as from the flow variables FOE and IMM, would be more theoretically sound than others, such as from the long-terms stress variables STR and STS, paths from all the exogenous variables were drawn to *satisfaction* (SAT) to find out the full explanatory power of the model and avoid subtle mediation effects from going unnoticed. SAT, as well as CEF, remained as purely endogenous variables that are not exogenous to any other variable. All the paths discussed in this section can be seen below in Figure 11.

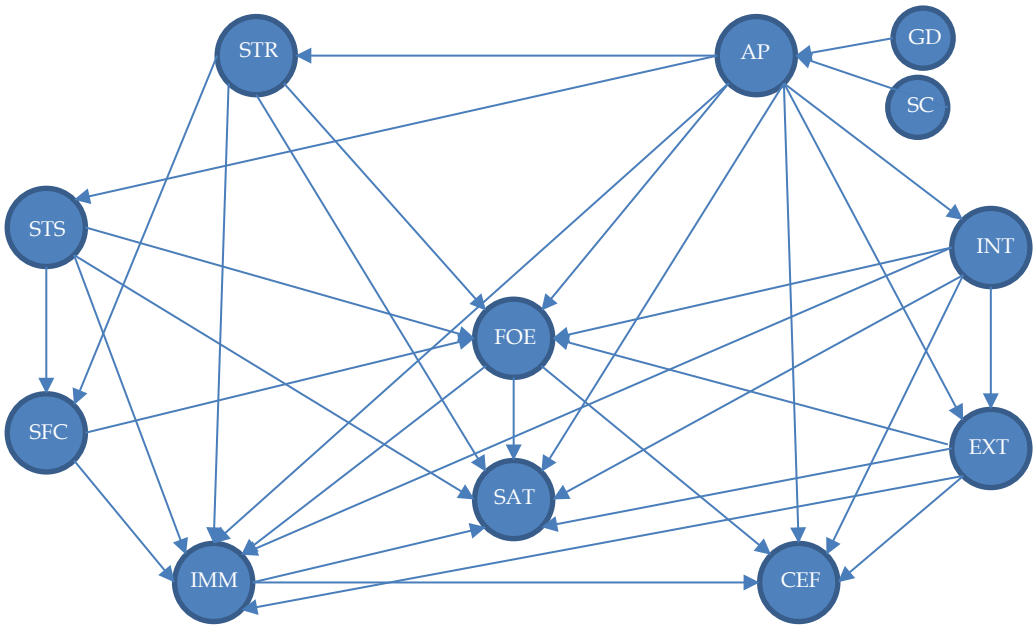

Figure 11 The original PLS model based on theoretical discussion had in the study

5.4 Exploring the connections between the latent variables: the theoretical basis

Some of the results of from the PLS algorithm, bootstrapping and blindfolding calculations conducted with the model presented in section 5.3 have already been discussed in sections 4.3.3 and 4.4.2. The numbers presented in those sections reflected the quality of the study, enabling an analysis with confirmatory approach. The results obtained with this original PLS model are although partially explorative, since the amount of paths drawn in the model on the basis of theoretical input is quite excessive and it is unlikely that all are significant. The focus in now on mapping the significant paths related to flow state, since the greater the complexity in the PLS model is, the greater risk there is that the model gets increasingly biased (Hair et al. 2012, 416). Thus, the confirmatory power of this original model should be approached with carefulness. For this reason, this chapter sticks mostly in description of the findings, with the further analysis being left for the next section. The results from the original PLS model are presented in Tables 16 and 17 below.

Table 16 Adjusted R^2 and Q^2 of the constructs in the original PLS model

Construct	R^2	Q^2
Autotelic personality (AP)	-	-
Commercial experience frequency (CEF)	0,068	0,052
Extrinsic motivation (EXT)	0,203	0,106
Fluency of experience (FOE)	0,234	0,132
Immersion (IMM)	0,250	0,119
Intrinsic motivation (INT)	0,021	0,013
Satisfaction (SAT)	0,266	0,139
Stress from children (SFC)	0,022	0,014
Stress stability (STS)	0,210	0,119
Stressfulness (STR)	0,011	0,007

Table 17 Details for the paths in the original PLS model

Path and its direction	*Path coefficient*	*Standard deviation*	f^2	*P-value (sig.)*
AP -> CEF	0,156	0,084	0,022	0,062

AP -> EXT	0,136	0,079	0,023	0,084
AP -> FOE	0,293	0,077	0,086	0,000
AP -> IMM	-0,041	0,054	0,002	0,446
*AP -> INT_*	0,162	0,086	0,027	0,058
AP -> SAT	-0,139	0,069	0,019	0,044
AP -> STS	-0,463	0,070	0,273	0,000
AP -> STR	-0,128	0,086	0,017	0,138
EXT -> CEF	-0,056	0,059	0,003	0,340
EXT -> FOE	-0,015	0,049	0,000	0,764
EXT -> IMM	-0,107	0,079	0,012	0,174
EXT -> SAT	-0,030	0,055	0,001	0,589
FOE -> CEF	0,188	0,081	0,027	0,021
FOE -> IMM	0,439	0,089	0,198	0,000
FOE -> SAT	0,050	0,059	0,002	0,399
IMM -> CEF	0,031	0,051	0,001	0,546
IMM -> SAT	0,291	0,074	0,087	0,000
INT -> CEF	0,016	0,053	0,000	0,768
INT -> EXT	-0,463	0,092	0,265	0,000
INT -> FOE	0,059	0,062	0,004	0,343
INT ->IMM	0,091	0,060	0,009	0,127
INT -> SAT	0,381	0,108	0,155	0,000
SFC -> FOE	-0,207	0,063	0,056	0,001
SFC -> IMM	-0,196	0,069	0,048	0,005
SFC -> SAT	0,061	0,048	0,005	0,202
STS -> FOE	-0,143	0,069	0,020	0,037
STS -> IMM	0,053	0,053	0,003	0,316
STS -> SAT	-0,119	0,069	0,014	0,087
STS -> SFC	0,183	0,080	0,034	0,022
STR -> FOE	-0,187	0,068	0,045	0,006
STR -> IMM	0,192	0,081	0,046	0,018
STR -> SAT	-0,043	0,056	0,002	0,439
STR -> SFC	0,020	0,051	0,000	0,702

When evaluating the (adjusted) R^2 scores of the model, it can be interpreted that the model explains notable amount of the variance in for satisfaction (26,6%), which the model predicts (Q^2) with a moderate relevance. Judging from the f^2-values that reflect the

size of the effect from individual paths leading to satisfaction, the main contributors to the common variance in satisfaction are intrinsic motivation (f^2=0,155, p<0,001) and immersion (f^2=0,087, p<0,001). No other path exceeded the lower boundary of a weak effect in f^2=0,02 (Hair et al. 2012, 430).

Since the model was constructed around variables theoretically relevant to the flow state, it is not surprising that the model explained the variance in both flow variables, immersion (25,0%) and fluency of experience (23,4%), rather well. Stress and personality constructs contributed significantly to the flow state, but the motivational types had no significant (p<0,05) effect in it. Fluency of experience was also the only significant path (f^2=0,027, p<0,05) leading to commercial experience frequency. The paths of these constructs connected to the flow variables will be discussed more thoroughly in section 5.5.

The motivational types intrinsic and extrinsic motivation were left totally unconnected to other constructs than the satisfaction mentioned before. It is logical that being intrinsically motivated to attend the commercial experience has a positive effect in satisfaction as well. The prediction of a trade-off seen between extrinsic and intrinsic motivation was also partially visible in the data, since the PLS model explained 20,3% of the variance in extrinsic motivation, with the clearly biggest contributor (f^2=0,265, p<0,001) being intrinsic motivation with a negative path coefficient indicating a reverse relationship.

To simplify the PLS model and to reduce the bias generated from the excessive complexity, certain procedures were made to drop out unnecessary paths and variables. First, all the insignificant paths were removed. This lowered the paths already with twenty. Next, all the ineffective paths where f^2 was lower than 0,02 were removed. This took out one path (AP -> SAT). Finally, the LVs containing the motivational types were removed from the model due to the lack of significant paths to any other LV that would connect it to the flow state. By doing this, the PLS model got simpler by losing two variables and two now irrelevant but significant paths. The lower bias caused by removing complexity and meddling insignificant paths increase the confirmatory power of the study and thus gives higher trustworthiness for the analysis conducted in the next section.

5.5 Confirming the connections around flow state in commercial experience

Left with only 8 variables connected in the inner model with 11 paths, the final PLS model costructed around the flow state is notably simpler without having to lose any significant input regarding the flow state in a commercial experience. Although, in some

cases this procedure might have caused slight mediation effects to hide. The final PLS model and its results used to evaluate the inner model are presented below in Figure 13 and Tables 18 and 19.

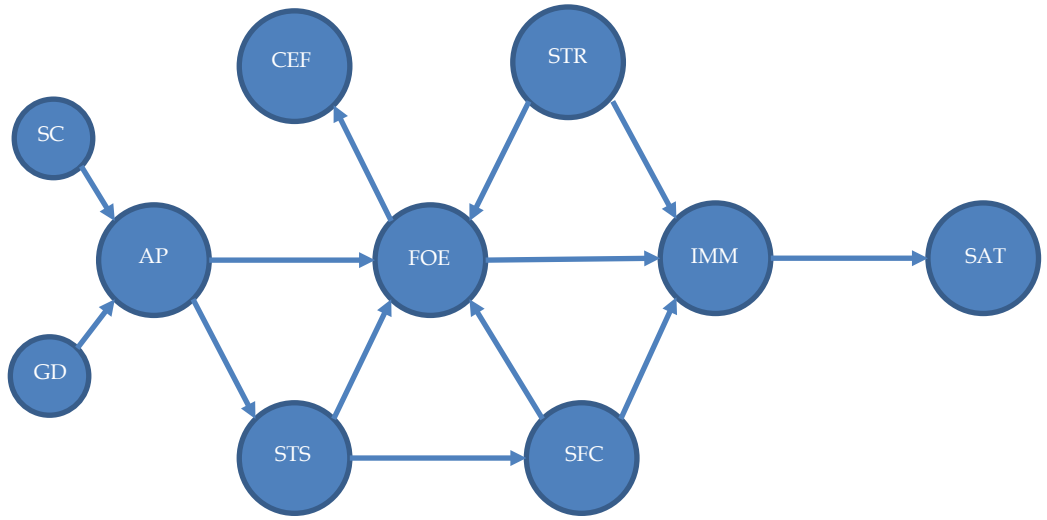

Figure 12 The final PLS model constructed around the flow state

Going back to the results from the original PLS model in the previous section, it was notable to realize, how autotelic personality, fluency of experience, immersion and satisfaction formed a coherent chain with only one significant path loading from a LV to another. Now, after the removal of unnecessary paths and variables, this chain forms the core of the final PLS model. This core was influenced by the stress variables surrounding the two flow variables, from which fluency of experience also affected to the commercial experience frequency as the extension of autotelic personality.

Table 18 Adjusted R^2 and Q^2 of the constructs in the final PLS model

Construct	*R^2*	*Q^2*
Autotelic personality (AP)	-	-
Commercial experience frequency (CEF)	0,064	0,065
Fluency of experience (FOE)	0,236	0,132
Immersion (IMM)	0,236	0,122
Satisfaction (SAT)	0,135	0,061
Stress from children (SFC)	0,028	0,022

Stress stability (STS)	0,219	0,124
Stressfulness (STR)	-	-

Table 19 Details for the paths in the final PLS model

Path and its direction	*Path coefficient*	*Standard deviation*	f^2	q^2	*P-value (sig.)*
AP -> FOE	0,295	0,075	0,088	0,040	0,000
AP -> STS	-0,473	0,064	0,288	0,142	0,000
FOE -> CEF	0,264	0,069	0,075	0,070	0,000
FOE -> IMM	0,427	0,078	0,217	0,091	0,000
IMM -> SAT	0,373	0,061	0,162	0,065	0,000
SFC -> FOE	-0,204	0,063	0,054	0,023	0,001
SFC -> IMM	-0,175	0,069	0,038	0,016	0,012
STS -> FOE	-0,146	0,069	0,021	0,001	0,034
STS -> SFC	0,182	0,079	0,034	0.022	0,022
STR -> FOE	-0,196	0,066	0,050	0,022	0,003
STR -> IMM	0,186	0,076	0,044	0,017	0,014

The final model explained the two flow variables well. According to Hair et al. (2011, 147), an R^2-value of 0,20 in consumer behavior studies can be kept as an indicator of high explanatory level. The flow variables exceeded this threshold with identical R^2-values of 0,236. The fact that the intensity of fluency of experience, which contained the items measuring how smoothly the customer acted to reach the goals facilitating flow, had a quite large effect (f^2=0,217, p <0,001) in the intensity of immersion and not the other way around. The predictive power of this path (q^2=0,091) was below medium threshold of q^2=0,150 (Cohen 1992, 157).

Set to predate the flow experience, autotelic personality (or rather a small representation of it) had a quite small effect directly on flow (f^2=0,088, p <0,001). Commercial experience frequency seems to be explained (R^2=0,064) and predicted (Q^2=0,065) by the model with almost even power. The sole contributor to this was fluency of experience (f^2=0,075, q^2=0,070, p<0,001) – which was assumed to mediate the effects autotelic personality while constructing the PLS model. An additional run showed, that the path between AP and CEF was indeed somewhat effective ((f^2=0,05) and significant (p<0,05) when FOE was not connected to CEF.

Autotelic personality also seemed to explain and predict the perceived stress stability well (f^2=0,288, q^2=0,142, p<0,001). The perceived stress stability seemed to have a borderline small negative effect to fluency of experience (f^2=0,021, p<0,05) and slightly larger positive effect (f^2=0,034, p<0,05) in the perceived stress caused by children during the commercial experience. On the other hand, the perceived stressfulness seemed to have a small negative effect in both of the flow variables in the mix (FOE f^2=0,050, p<0,05; IMM f^2=0,044, p<0,05). Having to commit attention to a child during the commercial experience and perhaps feel stressed due to it also logically had a negative effect in the intensity of flow (FOE f^2=0,054, p<0,05; IMM f^2=0,038, p<0,05).

The main outcome variable of the model, satisfaction, was explained moderately well (R^2=0,135) and predicted a bit less (Q^2=0,065). With the only path connecting satisfaction to the model, immersion was naturally the biggest contributor (f^2=0,162, q^2=0,065, p<0,001). The immersion - losing track of the irrelevant cues and thoughts to the commercial experience – was thus the reason why flow increased customer satisfaction in this commercial experience context.

6 CONCLUSIONS

6.1 Findings and theoretical implications

The purpose of the research done in this study was to understand the dynamics behind the personal characteristics, experienced flow state and satisfaction in commercial experiences. This was first addressed by finding out how the intensity of flow state vary between different customers groups. Secondly, the study moved to analyze how the personal characteristics influence on the intensity of the flow state experienced by the customer. Lastly, the focus was moved to investigate in what extent do the flow state and the personal characteristics closely connected to it affect customer satisfaction. By addressing these issues, the study contributed for a better understanding of the subjective customer experience in commercial experiences by using concepts from the studies in psychology. Some of the findings should then also contribute to the psychological research by encouraging researchers to study these topics in other contexts.

When analyzing the data through the variances in means to find out the answers for the first sub-objective, it was discovered that the flow was the most intense among the adolescents – which represented a core customer group in the commercial experience the study was held. Flow was also notably higher for respondents, who reported the commercial experience to strongly exceed their expectations. Customers reporting to visit commercial experiences more often experienced more intense flow, while parents with a child requiring a lot of attention had a decreased level of flow. All of these made sense in the light of flow theory discussed in chapter 2 and supplement exceptionally well the findings and theorizations made by Csikszentmihalyi (1975) when he conceptualized flow for the first time.

The second and third sub-objectives were researched through a structural equation modelling technique PLS. While this method solidified the connections of stress and flow and autotelic personality and flow, no connection with flow and intrinsic motivation was discovered. The fact that the PLS model was capable of explaining almost a fourth of the variance of the intensity of flow state in a commercial experience by using in total 12 items slightly inquiring about a few personality traits and stress was really promising. The long-term stress, which was measured with two variables, had a slight effect in the intensity of flow reported by the customers. The theory from Csikszentmihalyi and Nakamura (2014) and the findings of Peifer et al. (2014) both made a case for findings like this, but

no study has discovered negative effect of long-term perceived stress in the intensity of flow state.

As only six items and a small amount of traits was now used to represent the complex entirety of personality, the effect witnessed is surprisingly large. The finding supported the previous studies about the personality factors conscientiousness and neuroticism enabling relatively higher intensity of flow (Ullen et al. 2012; Johnson et al. 2014; Ross & Keiser 2014). To a certain level, the previous research of Csikszentmihalyi (1975; 1990) was also supported. People with autotelic personality do not only experience more flow than others in the same situation, but also put themselves in situations where entering flow state is more likely.

When addressing the third sub-objective directed towards satisfaction as the outcome of flow and the relevant personal characteristics, another discovery made in this study should be discussed first. The analyses showed that the flow state splits into two variables – to immersion and fluency of experience preceding it. This finding supported the theory from Dietrich (2004), which considered the immersive effects of closing out things irrelevant to the goal to be by-products of increased capabilities to think and act. This by-product, immersion, was the only subjective phenomenon with a connection to satisfaction in this study, thus possibly mediating the effects of all other flow-related variables and personal characteristics. The flow effect has traditionally been measured as one, but with only certain characteristics of it influenced satisfaction – or maybe even in the autotelic nature of flow. Consequently, more truthful results could be available by splitting the flow state in two variables in the future.

Considering these findings, a chain of notable effects started from the autotelic personality and went through the flow state consisting of fluency of experience and ending with satisfaction. The findings in this study of flow affecting satisfaction are consistent with the autotelic nature of flow in the original flow theory (Csiksentmihalyi 1975, 53–54), but also with the findings of Wu and Liang (2011, 323) and Kanagasapapathy (2017, 217–219) made in different commercial contexts. Kao, Huang and Wu (2008, 171) had also discovered the connection between immersion and satisfaction. Immersion was popularized by Pine and Gilmore (1999) as a term to describe the psychological effects of loosing self in the commercial experience. Based on the results of this study, this experience strongly linked to flow state which has been studied to a great extent within the field of psychology, providing a great source of information for researchers studying commercial experiences in the future.

Additionally, intrinsic motivation positively influencing satisfaction was in line with the findings from de Geus, Richards and Toepoel (2013, 165–166). The size of the effect

was also quite similar. Interestingly and contradictorily to the findings of the mentioned study, no effect was found between extrinsic motivation and satisfaction. There were no previous studies made to study the connection between flow and motivation in commercial experience context. This study could not find a linkage between these two concepts, but it is important to notice, that for many participants the intrinsic motivation could have had altruistic nuances in it – like Falk (2006, 157) has previously discovered, for some it might be more important to facilitate the experience for the children rather than partake the commercial experience just for the sake of themselves. In both cases, the answers to the questionnaire could be the same – the person wanted to visit the commercial experience.

6.2 Managerial implications

Pretty much everyone visiting in the commercial experience entered at least a low intensity flow state and for most the intensity was medium or high. Multiple studies have noted the importance of immersion as part of the escapist experience (see section 3.4.2) and flow state has a high responsibility on creating this effect, which also increases the customer satisfaction felt and reported. Thus, the facilitators of commercial experiences should design their experiences with the requirements of flow state in mind. But they must be careful of not increasing the challenge too much in the quest of inducing an intense flow state in all of the customers, as it might be enough for most to keep the intensity medium to awake the sense of control while still avoiding the most stressful and possibly anxious reactions for customers not capable of coping with the challenge.

The higher level of flow experienced during the commercial experience also seemed to have a connection with its potential to exceed the expectations set by the customer beforehand. Naturally, this is what the facilitators of commercial experiences should aspire with their offerings. Seeking to optimize the challenge level by adding various kinds of stimuli through the SEMs (see section 3.3) can help with this. Another way of approaching the optimization of commercial experience for more intense flow is to get rid of the overwhelming amount of stimuli distracting the customers from the primary goals and actions they are supposed to achieve and do in order to experience the commercial experience as they should. These surplus stimuli might only distract the customer and cause a minor dip in the intensity of flow, but also larger effects can be possible if the excessive information cause the customer to start working towards goals set by it, such as reflecting themselves to find an answer to a question caught from an advertisement or

a request to pay more. Thus, the unity of the experience and the goals and actions set by it – possibly seen as its theme – serves as a cage locking away the irrelevant thoughts for the commercial experience. The facilitators should thus always consider, is it worth of letting some of these negative thoughts re-appear and decrease the quality of the commercial experience by doing that.

If creating an escapist experience is what the facilitator of the commercial experience seeks, it would be recommended to take the intensity of flow among the core customer groups as a measure for the success of finding the optimal level of challenges set by the SEMs. If the core customer groups do not reach higher flow than other groups, it might be wise to consider if the amount of stimuli is set at the right level, as better results could be available after optimizing the commercial experience to match the skill levels of these core customer groups. Obviously, the issue of differentiating the commercial experience over choosing a more generalized offering must be addressed first.

Since people with various distinct kinds of personalities engage themselves to experience flow differently, it would be suggested, that the facilitators of commercial experiences take these personal differences into account. This means multiple levels of guidance provided for the customers to enter flow. For some autotelic personalities, only a few cues are needed for them to feel confident and get engaged to activities that take them closer of reaching the goals set in the commercial experience – such as learning in a museum or feeling united with the sports team. On the flipside, there are people or personalities who might struggle to enter flow and feel immersed in the experience. Was it the daily stress, neurotic self-reflective thinking or lower conscientious dedication to interact with the experience, the commercial experience loses some of its maximum offered value for this group. These personalities might need gentle guidance to forget their worries outside, enter the role, experience and find the objectives that can be interacted with.

The people experiencing less flow might show some untapped market potential as well. They might be less interested in commercial experience for the simple reason, that they do not feel flow in it and thus leave it less satisfied. In some cases, if the facilitator of experience is capable to improve to cater for this group of customers and thus reduce the gap between autotelic and non-autotelic personalities in flow intensity, the commercial experience could be able to increase the frequency of visits for the latter group as well. Concluding this whole section, it is recommended for the facilitators of commercial experiences to measure and track the intensity of flow among their customers as a part of their customer surveys conducted during or right after the visit. For example, the Flow Short Scale (Engeser & Rheinberg 2014) items 2–10 utilized also in this study provide a

good and easily implementable tool for these actions. Flow is after all a crucial and often overlooked part of the commercial experience.

6.3 Limitations of the study and suggestions for future research

Since the study was conducted in a commercial experience where majority of the customers arrived with their families, the generalizability of the study should be questioned. The behavior of the relationships between personal characteristics and flow state should be stable across all the commercial experiences, but how those contribute to satisfaction and commercial experience frequency might not translate similarly in other contexts. For example, for a parent of a young child, the joyful experience of the child might be more important than her/his own subjective experience and reducing the importance of flow in her/his conscious assessment over customer satisfaction. But in relation to the theory about the flow state, this would not make the results of the study questionable – quite the contrary, as in commercial experiences with set goals focused more on the hedonistic needs of self, the effect of flow in satisfaction should be even higher in comparison.

Another issue that might have risen in this study was the overly positive score in customer satisfaction, in which the variables' summated mean in scale from 1,00 to 5,00 was 4,00. This study was incapable of acquiring data from unsatisfied customers and evaluate how flow state altered their rate of satisfaction. Based on this, the study confirmed that satisfied customers are even more satisfied after experiencing flow, but it cannot be confirmed if the intensity of flow drops in equal ratio with the satisfaction in negatively perceived commercial experiences.

A few other limitations in the personal characteristics close to flow theory are also worth addressing. First, the stress measured was focused mostly in long-term stress to avoid the perception of acute stress being altered by the possibly high intensity flow during the commercial experience. Secondly, measuring motivation only in middle of the experience is not optimal and it should be surveyed from the same person before beginning the commercial experience as well. Thirdly, six items – or originally 14 items – directed towards the personality of the respondent hardly covers the whole complexity of personality. It is barely a small representation of that, but it should still provide valuable input for the field of marketing. All of these decisions were compromises made due the limited resources of the researcher and thus should be considered in the future research affected by this study.

To avoid misinterpretations, it is mentioned once more that this study is a marketing research. The findings made in this study might not meet all the requirements set in psychological research. Further analysis with the more controlled research conditions will be required to reach the point where conclusions can be made in this topic. This study should although be encouraging for the researchers studying flow in the field of psychology. For the purposes of consumer behavior research, this study exceeds the requirements set and thus contributes for the future research.

Outside of directly addressing some of the limitations of this research in non-optimal satisfaction values or tough choices made in the setting of the research on behalf of personal characteristics, this study provides the researchers with several noteworthy research ideas around the flow state in commercial experiences. The next logical step from here would be to begin researching the other outcomes of commercial experience than only satisfaction. These could be for example the other experience quality constructs than immersion (see section 3.2) or be inspired by Schouten, McAlexander and Koenig (2007) and discover the effects of flow to relationship with the brand, but this time with the flow state split in two variables. The two flow state measurements could also be applied to services more focused on the utilitarian value over the emotional and hedonic commercial experience.

The concept of the visit frequency in commercial experiences in general was extremely straightforward in this study. It was constructed around a single background variable. In the future research, this should be applied into more complex approach while trying to discover the full impact of flow in the frequency of visits. Some sort of connection between these concepts was already discovered in this study, but with the outcome variable being number of visits and amount of consumption, the marketing research should be very eager to find out how the intensity of flow actually contributes in this context.

The traditional measurement of reported balance between difficulty and skill did not suit for commercial experiences including subtle and even implicit sensory stimuli challenging the mental capacity emerging flow in the participants. To tackle this issue, the Figure 6 which summarized the popular commercial experience theories with flow theory could be helpful. Based on the Figure 6, the SEMs could provide a better tool to measure the level challenges impacting the intensity of flow in the customer. This approach could be started by applying the brand experience concept of Brakus, Schmitt and Zarantonello (2009, 60) to commercial experiences, since it is strongly influenced by the SEMs of Schmitt (1999) and has the items ready to be configured into slightly different context.

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APPENDIX

Kysely sinusta ja Heureka-kokemuksestasi

1. Ikäsi *

- ◯ 0-12
- ◯ 13-19
- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60-69
- ◯ 70+

2. Sukupuolesi *

- ◯ Nainen
- ◯ Mies

3. Käyn vastaavanlaisissa elämyksissä tai tapahtumissa *

- ◯ Hyvin harvoin
- ◯ Harvoin
- ◯ Joskus
- ◯ Usein
- ◯ Hyvin usein

4. Tulin Heurekaan *

- ◯ Yksin
- ◯ Yhden seuralaisen kanssa
- ◯ Useamman seuralaisen kanssa

Kuinka hyvin seuraavat väittämät kuvaavat sinua?

6. Olen tyytyväinen, että päätin tulla Heurekaan *

- ◯ Täysin eri mieltä
- ◯ Jokseenkin eri mieltä
- ◯ En samaa enkä eri mieltä
- ◯ Jokseenkin samaa mieltä
- ◯ Täysin samaa mieltä

7. Heureka ylitti odotukseni *

- ◯ Täysin eri mieltä
- ◯ Jokseenkin eri mieltä
- ◯ En samaa enkä eri mieltä
- ◯ Jokseenkin samaa mieltä
- ◯ Täysin samaa mieltä

8. Heureka oli hintansa arvoinen *

- ◯ Täysin eri mieltä
- ◯ Jokseenkin eri mieltä
- ◯ En samaa enkä eri mieltä
- ◯ Jokseenkin samaa mieltä
- ◯ Täysin samaa mieltä

9. Tulin Heurekaan, koska *

	Täysin eri mieltä	Jokseenkin eri mieltä	En samaa enkä eri mieltä	Jokseenkin samaa mieltä	Täysin samaa mieltä
Halusin tulla	◯	◯	◯	◯	◯
Nautin täällä vierailusta	◯	◯	◯	◯	◯
Tiede on tärkeää minulle	◯	◯	◯	◯	◯
Tulen oppimaan jotain hyödyllistä	◯	◯	◯	◯	◯
Tuntisin huonoa omatuntoa, jos en tulisi	◯	◯	◯	◯	◯
Halusin tehdä vaikutuksen ystäviini tai läheisiini	◯	◯	◯	◯	◯
Muut halusivat minun tulevan	◯	◯	◯	◯	◯
Minun käskettiin tulla	◯	◯	◯	◯	◯

Heurekan näyttelyissä...

10. Tuntui olevan minulle oikea määrä haastavuutta

Ei pidä paikkansa  Pitää hyvin paljon paikkansa

11. Ajatukseni kulki sujuvasti ja vaivattomasti

Ei pidä paikkansa — Pitää hyvin paljon paikkansa

12. En huomannut ajan kulkua

Ei pidä paikkansa — Pitää hyvin paljon paikkansa

13. Minulla ei ollut vaikeuksia keskittuä oleelliseen

Ei pidä paikkansa — Pitää hyvin paljon paikkansa

14. Mieleni oli täysin kirkas

Ei pidä paikkansa — Pitää hyvin paljon paikkansa

15. Olin täysin uppoutunut siihen, mitä tein

Ei pidä paikkansa — Pitää hyvin paljon paikkansa

16. Oikeat ajatukset ja teot tulivat minulta kuin itsestään

Ei pidä paikkansa — Pitää hyvin paljon paikkansa

17. Tiesin mitä minun piti milloinkin tehdä

Ei pidä paikkansa — Pitää hyvin paljon paikkansa

18. Tunsin, että kaikki oli hallinnassani

Ei pidä paikkansa  Pitää hyvin paljon paikkansa

19. Olin täysin uppoutunut ajatuksiini

Ei pidä paikkansa  Pitää hyvin paljon paikkansa

20. Verrattuna kaikkiin muihin yleensä tekemiini asioihin, haasteet joita Heureka tarjosi, olivat..

Helppoja  Haastavia

21. Heurekassa vaadittavissa asioissa osaamiseni taso on...

Matala  Korkea

22. Minulle henkilökohtaisesti Heurekan vaatimustaso oli...

Liian alhainen  Liian korkea

(Puoliväli="Juuri sopiva")

23. Viimeisen kuukauden aikana *

	En koskaan	En lähes koskaan	Välillä	Melko usein	Hyvin usein
Olen tuntenut oloni hermostuneeksi ja stressaantuneeksi	○	○	○	○	○
Olen luottanut kykyyni käsitellä ongelmiani	○	○	○	○	○
Olen kokenut, että asiat ovat menneet suunnitelmieni mukaisesti	○	○	○	○	○
Olen kokenut, etten selviä kaikista niistä asioista, joita minun tulee tehdä	○	○	○	○	○
Olen huomannut ajattelevani tekemättömiä asioita	○	○	○	○	○
Olen voinut hallita omaa ajankäyttöäni	○	○	○	○	○

24. Kuinka hyvin seuraava väittämä kuvaa sinua? *

	Erittäin huonosti	Melko huonosti	Ei hyvin eikä huonosti	Melko hyvin	Erittäin hyvin
Olen ylpeä hyvästä arvostelukyvystäni	○	○	○	○	○
Huomaan päätöksenteon olevan minulle usein vaikeaa	○	○	○	○	○
Minulla on usein selkeitä tavoitteita, joiden eteen teen töitä järjestelmällisesti	○	○	○	○	○
Usein keskusteluissa puhun muita enemmän	○	○	○	○	○
Tunnen oloni mukavaksi esimiesten, opettajien ja muiden auktoriteettien läsnäollessa	○	○	○	○	○
Saan lähes aina aloittamani projektit valmiiksi	○	○	○	○	○
Olen huoleton ja välillä jopa välinpitämätön	○	○	○	○	○
Tunnen oloni usein alempiarvoiseksi vertaillessani itseäni muihin	○	○	○	○	○
Teen usein työni hitaasti, mutta varmasti	○	○	○	○	○
Minun tulisi olla hyvin sairas jättääkseni työ- tai koulupäivän väliin	○	○	○	○	○
Tunnen usein pursuavani energiaa	○	○	○	○	○
En ota kansalaisvelvollisuuksia, kuten äänestämistä, kovin vakavasti	○	○	○	○	○
Tuhlaan paljon aikaa ennen kuin asetun työskentelemään	○	○	○	○	○
Kulkisin mielummin omaa tietäni kuin johtaisin muita	○	○	○	○	○
Pystyn pitämään pääni kylmänä hätätilanteissa	○	○	○	○	○
En välillä ole niin luotettava, kuin minun tulisi olla	○	○	○	○	○